TACP-100 User's Manual

Revision 2.0

(July 2009)

WARNING
Do not attempt to disassemble your TACP device. Doing so may void your warranty. There are no serviceable parts inside. Please refer all servicing to qualified personnel.

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Warranty

Avitech International Corporation (herein after referred to as "Avitech") warrants to the original purchaser of the products manufactured in its facility (the "Product"), that these products will be free from defects in material and workmanship for a period of one (1) year or twelve (12) months from the date of shipment of the Product to the purchaser.

If the Product proves to be defective during the one (1) year warranty period, the purchaser's exclusive remedy and Avitech's sole obligation under this warranty is expressly limited, at Avitech's sole option, to:
(a) repairing the defective Product without charge for parts and labor; or
(b) providing a replacement in exchange for the defective Product; or
(c) if after a reasonable time is unable to correct the defect or provide a replacement Product in good working order, then the purchaser shall be entitled to recover damages subject to the limitation of liability set forth next.

Limitation of liability: Avitech's liability under this warranty shall not exceed the purchase price paid for the defective product. In no event shall Avitech be liable for any incidental, special, or consequential damages, including without limitation, loss of profits for any breach of this warranty.

If Avitech replaces the defective Product with a replacement Product as provided under the terms of this Warranty, in no event will the term of the warranty on the replacement Product exceed the number of months remaining on the warranty covering the defective Product. Equipment manufactured by other suppliers and supplied by Avitech carries the respective manufacturer's warranty. Avitech assumes no warranty responsibility either expressed or implied for equipment manufactured by others and supplied by Avitech.

This Warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty of merchantability or fitness for a particular purpose, all of which are expressly disclaimed.

This Hardware Warranty shall not apply to any defect, failure, or damage:

- caused by improper use of the Product or inadequate maintenance and care of the Product;
- resulting from attempts by other than Avitech representatives to install, repair, or service the Product;
- caused by installation of the Product in a hostile operating environment or connection of the Product to incompatible equipment; or
- caused by the modification of the Product or integration with other products when the effect of such modification or integration increases the time or difficulties of servicing the Product.

Any Product which fails under conditions other than those specifically covered by the Hardware Warranty, will be repaired at the price of parts and labor in effect at the time of repair. Such repairs are warranted for a period of ninety (90) days from date of reshipment to customer.

Extended Warranty Options

Avitech offers OPTIONAL Extended Warranty plans that provide continuous coverage for the Product after the expiration of the Warranty Period. Contact an Avitech sales representative or details on the options that are available for your Avitech equipment.

Services and Repairs Outside the Warranty Period

Avitech make its best offer to repair products that is outside the warranty period, provided the product has not reached its end of life (EOL). The minimum charge for such repair excluding shipping and handling is $200 (US dollars).

Regulatory Information

NOTE: Marking labels located on the exterior of your device indicate the regulations that your model complies with. Please check the marking labels on your device and refer to the corresponding statements in this chapter. Some notices apply to specific models only.

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Avitech is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

European Union CE Marking and Compliance Notices

Statements of Compliance

English
This product follows the provisions of the European Directive 1999/5/EC.

Danish
Dette produkt er i overensstemmelse med det europæiske direktiv 1999/5/EC.

Dutch
Dit product is in navolging van de bepalingen van Europees Directief 1999/5/EC.

Finnish
Tämä tuote noudattaa EU-direktiivin 1999/5/EC määräyksiä.

French
Ce produit est conforme aux exigences de la Directive Européenne 1999/5/EC.

German
Dieses Produkt entspricht den Bestimmungen der Europäischen Richtlinie 1999/5/EC.

Greek
Το προϊόν αυτό πληροί τις προβλέψεις της Ευρωπαϊκής Οδηγίας 1999/5/EC.

Icelandic
Þessi vara stenst reglugerð Evrópska Efnahags Bandalagsins númer 1999/5/EC.

Italian
Questo prodotto è conforme alla Direttiva Europea 1999/5/EC.

Norwegian
Dette produktet er i henhold til bestemmelsene i det europeiske direktivet 1999/5/EC.

Portuguese
Este produto cumpre com as normas da Diretiva Européia 1999/5/EC.

Spanish
Este producto cumple con las normas del Directivo Europeo 1999/5/EC.

Swedish
Denna produkt har tillverkats i enlighet med EG-direktiv 1999/5/EC.

Australia and New Zealand C-Tick Marking and Compliance Notice

Statement of Compliance

This product complies with Australia and New Zealand's standards for radio interference.

Preface

Welcome

Congratulations on purchasing the Avitech TACP-100 (Touch-screen Avitech Control Panel).

The TACP is a touch sensitive display device that controls Avitech Multiviewer modules or module groups. It is equipped with 7-inch, color active TFT LCD display that supports 800×480 resolution. This is the perfect control panel for mobile or temporary installation where the use of a PC for control is not practical. The TACP can be surface or rack mounted.

The TACP is capable of directly communicating with up to 120 Avitech Multiviewer modules over seven different IP address and one RS-232 connections. Easily control multiple systems in various deployment combinations through one single TACP. In addition, TACP has peer-to-peer communication capability; allowing you to create TACP networks and expand to extremely large and complex systems any time over Ethernet communication.

Using the Avitech ASCII Protocol (also known as Z commands), the TACP supports all model lines of Avitech Multiviewer modules – allowing you to recall up to 26 pre-configured screen settings from each group of Multiviewers, providing ease of use to Avitech Multiviewer users.

Using the Avitech software Control Panel (ACP), the TACP can completely reflect all buttons and layouts, allowing it to share the same look and feel as the ACP even after the transformation. Each TACP also allows you to save up to three configurations.

This manual contains comprehensive information of your Avitech TACP-100 to help you operate the device. It is divided into four chapters and three appendices.

- Chapter 1, **Getting Started**, gives you an overview of the TACP as well as identify its external components.
- Chapter 2, **Avitech Control Panel**, shows you how to create the configurations using the Avitech Control Panel (ACP) and save it to the TACP.
- Chapter 3, **Communicating With Multiviewers**, tells you how to use TACP to communicate with Avitech Multiviewers.
- Chapter 4, **TACP Modes**, lets you know the basic controls of the TACP.
- Appendix A, **ASCII Z Commands**, provides you the complete lists of Z command lines.
- Appendix B, **Firmware Upgrade**, provides instructions on how to update TACP firmware.
- Appendix C, **ACP (More Information)**, provides additional information about the ACP (Avitech Control Panel).

> **NOTE:** For the administrator who needs to create configuration and edit the layouts, you may start from Chapter 2 to begin setup. However, if you are an operator who performs the TACP controls, you may start from Chapter 3.

About this Manual

Throughout the manual, the following conventions are used to distinguish elements of text.

> **NOTE:** provides additional hints or information that requires special attention.

> **CAUTION:** identifies important information which, if not followed, may result in loss of data or damage to your device.

Any name of menu, command, icon or button that you can see on the screen is shown in a bold typeset. For example:

On the **Start** menu, select **Settings**.

1 Getting Started

This chapter introduces you to the features and specifications as well as the external components of your Avitech TACP. It also guides you through the process of setting up your TACP for use.

> **NOTE:** Depending on the model you purchased, the cabinet color and the look of the accessories may be different from the ones shown in this manual.

1.1 Package Contents

After unpacking the shipping carton, you should find these standard items:

Avitech TACP

5 V DC Power Adapter

6 feet Category 5 Ethernet Cable

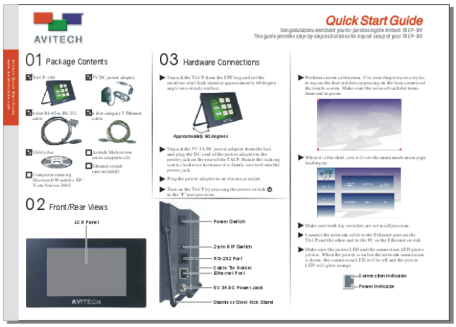
Proprietary RJ-45 to RS-232 (DB9-FM) Cable
(Refer to the “NOTE” below.)

3 RU Rack Mount Face Plate (optional)

Set of Screws (optional)

RS-232 Splitter Cable (optional)
(Refer to the “NOTE” below.)

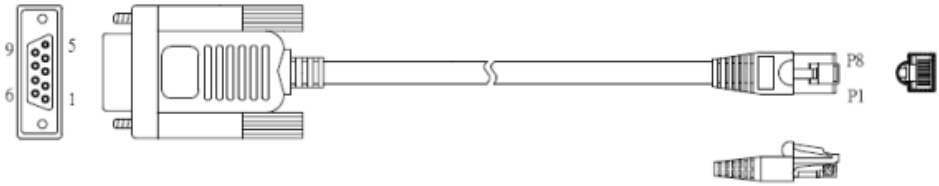
Utility Disc (contains software and user’s manual)



Quick Start Guide

NOTE:

- When the TACP is connected to the MCC-8001U, ACC-8000, and Rainier 4U1V and RS-232 is selected as the communication port, a RS-232 splitter cable is required.
- Due to space limitation, the serial connector is replaced with a RJ-45 connector. A proprietary RJ-45 to RS-232 (DB9-FM) cable is needed for serial function. The pin definition is shown next.



DB9-FM		RJ-45	
Pin	Assignment	Pin	Assignment
1		1	Tx
2	Tx	2	Gnd
3	Rx	3	
4		4	Rx
5	Gnd	5	Gnd
6		6	
7		7	
8	5 V	8	5 V
9			

1.2 Product Features

Hardware

- Direct communication with up to 120 modules on one TACP (including seven IP and one RS-232 connection).
- Peer-to-peer communication among TACPs.
- Ethernet and serial connectivity.

- Surface or rack-mounted (optional 3 RU rack mount face plate upon request).
- Compatible with all Avitech product lines.

Software

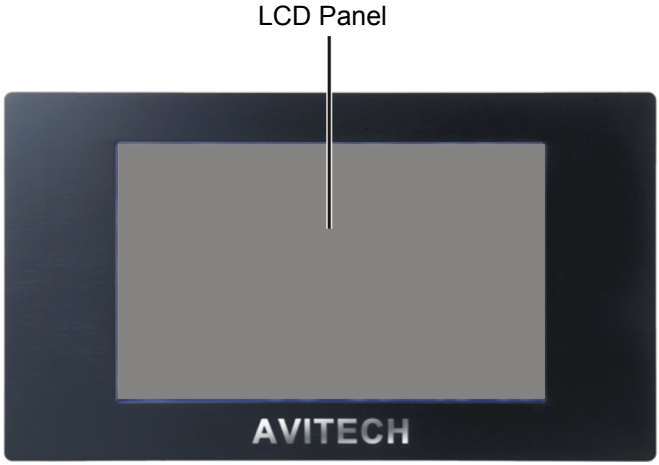
- Direct download grouping function from ACP over IP.
- Recall preset functions with just one push of a button.
- Using the ACP, the user interface on the TACP is customizable. The editable items include the display background, button style, button label, button size, location, Z command in each button, and the font size and color.

Specifications

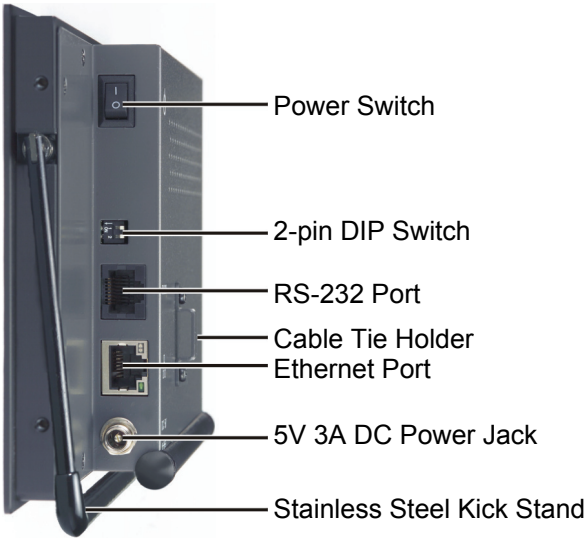
Parts		Specifications
I/O interface		IP for communicating with Multiviewers and the PC RS-232 for communicating with Multiviewers and the PC
Operating mode	Single	One TACP with up to seven sets of Multiviewers under different IP addresses and one set through RS-232 communication.
	Multiple	Peer-to-peer communication with combination of TACP and ACP.
Touch panel		7-inch active matrix a-Si TFT (Thin-Film Transistor) color LCD display 800×480 pixel resolution Resistive-type 4 wires 152.4×91.44 mm (6×3.6 inch) active area 0.0635×0.1905 mm (0.002×0.008 inch) pixel pitch Anti-glare overlay Finger or stylus pen input method
Power	Operating Voltage	5 V DC
	Connection	External DC input
Housing		Metal
Dimension (W×H×D)		232.6×132×45.0 mm (9.16×5.20×1.77 inch)
Weight		0.75 kg (1.7 lb)
Accessories		6 feet category 5 Ethernet cable 6 feet RJ-45 to RS-232 cable 5 V DC power adapter Quick Start Guide Utility disc 3 RU rack mount face plate (divided into two pieces) with set of screws (optional)

Parts		Specifications
Environment	Temperature	Operating: 0 °C (32 °F) to 50 °C (122 °F) Storage: –10 °C (–4 °F) to 60 °C (140 °F)
	Humidity	0 % to 80 % relative, non-condensing Maximum wet temperature: 35 °C (95 °F)
Safety regulations		FCC / CE / C-Tick, Class A
Software		Avitech Control Panel (ACP) Minimum supported version: V2.01 (dated 05/01/2009) Operating System compatibility: Microsoft Windows 2000, XP, Vista, Server 2003, Server 2008 **IMPORTANT for Windows 2000 user:** download the plug-in (**`gdiplus.dll`**) from the Microsoft® website at **`http://www.microsoft.com/downloads/details.aspx?FamilyID=6a63ab9c-df12-4d41-933c-be590feaa05a&displaylang=en`** and follow the on screen instructions to install it.

1.3 Identifying the Front Hardware Components

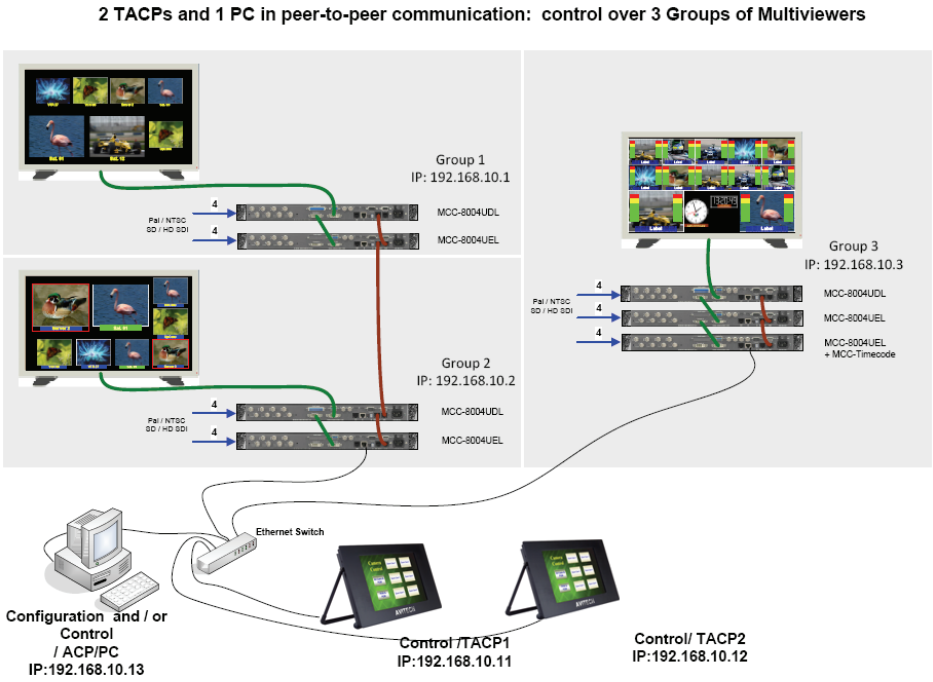


1.4 Identifying the Rear Hardware Components



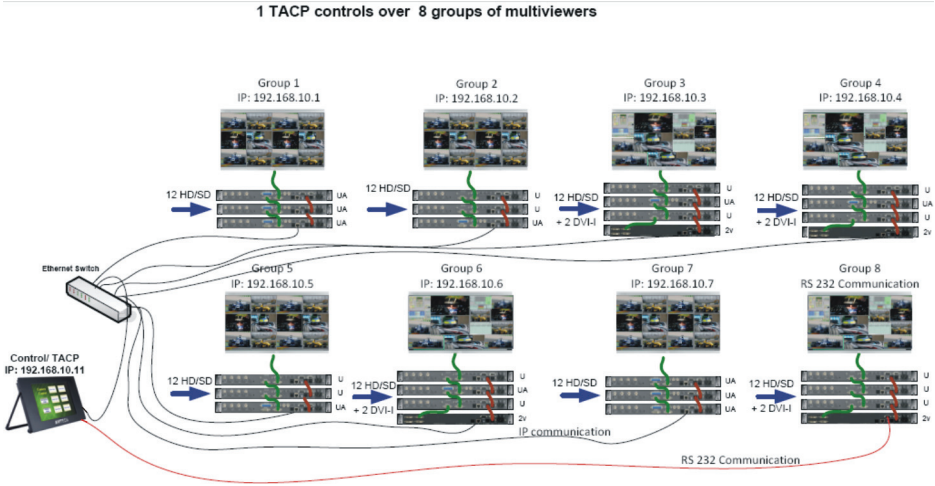
1.5 Sample Layout Diagram

The following illustration shows a sample ACP + TACP peer-to-peer system connection.



The TACP can control Multiviewer systems via itself, the ACP, as well as another TACP in one network. The ACP not only allows you to create the configuration, but also perform run-time communication with the Multiviewer systems.

The following illustration shows a single TACP in a multiple Multiviewer System.



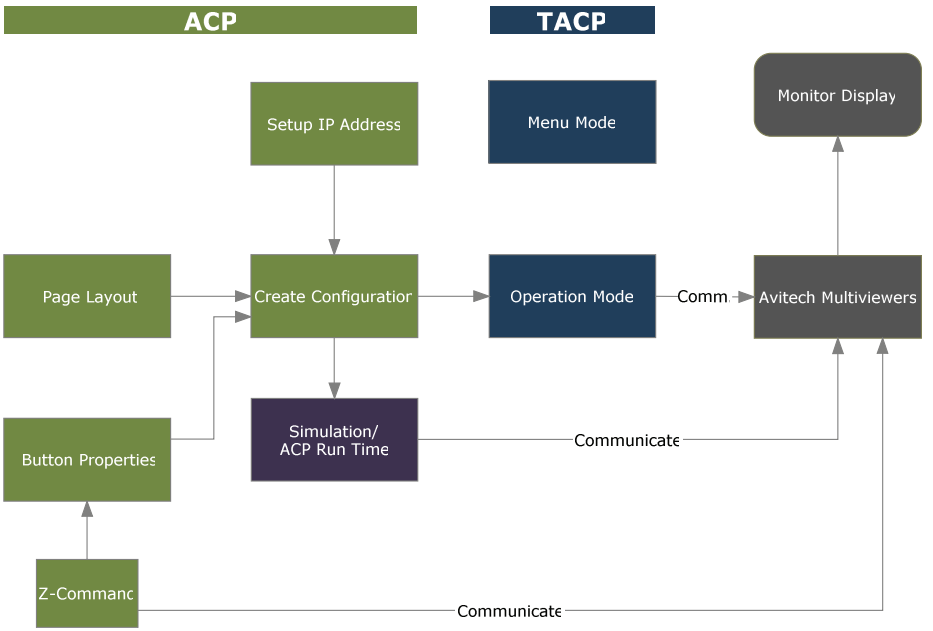
The TACP can control the Multiviewer system independently once the configuration has been downloaded from the ACP.

Each TACP is capable of controlling the Multiviewer system from seven different IP over the Ethernet switch. Also, one RS-232 connection allows you to directly connect to another group of Multiviewer system.

1.6 Configuration Setup Process

The following diagram shows you the typical configuration setup process.

ACP / TACP Setup Process



First Step: Setup IP address for the TACP and Multiviewers that the TACP will communicate with.

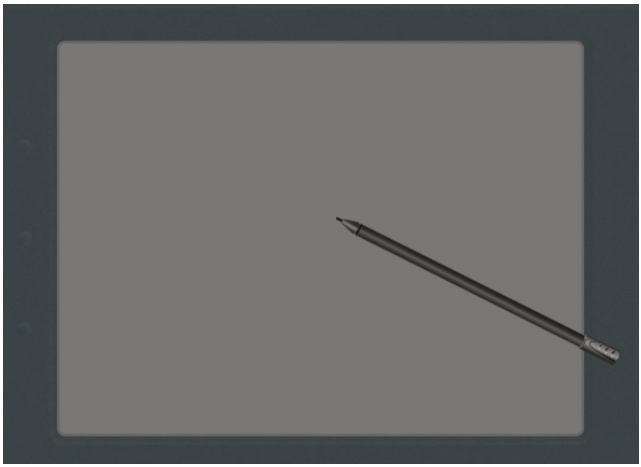
Second Step: Create the configuration, including setting page layouts, buttons, and assigning Z commands.

Third Step: Pass the configuration to the TACP. Make sure the TACP is in the same Ethernet network as the ACP.

Last Step: Connect the TACP with the modules; you can then control the Multiviewers.

1.7 Using the Touch Panel

The touch panel is a touch-sensitive device that allows you to easily communicate with the TACP. The 7-inch touch panel is a resistive-type 4 wire touch screen. It is suggested to use your finger tip, stylus, or pen tip to tap on the screen for better response.



1.8 Getting Your TACP Ready for Use

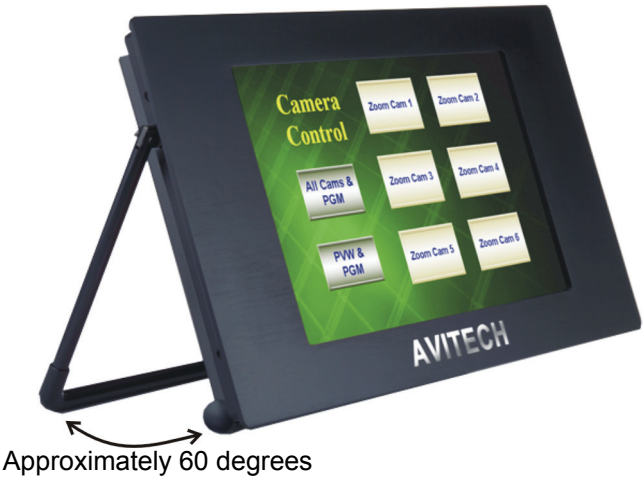
The Avitech TACP can be set up in any three ways namely:

- Stand-alone TACP table top setting
- Multiple TACP setting
- Rack mounted TACP setting

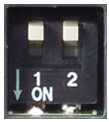
Stand-alone TACP Table Top Setting

To set up a stand-alone table top Avitech TACP, perform the following steps:

1. Unpack the TACP from the EPE bag and set the stainless steel kick stand at approximately 60 degree angle on a steady surface.

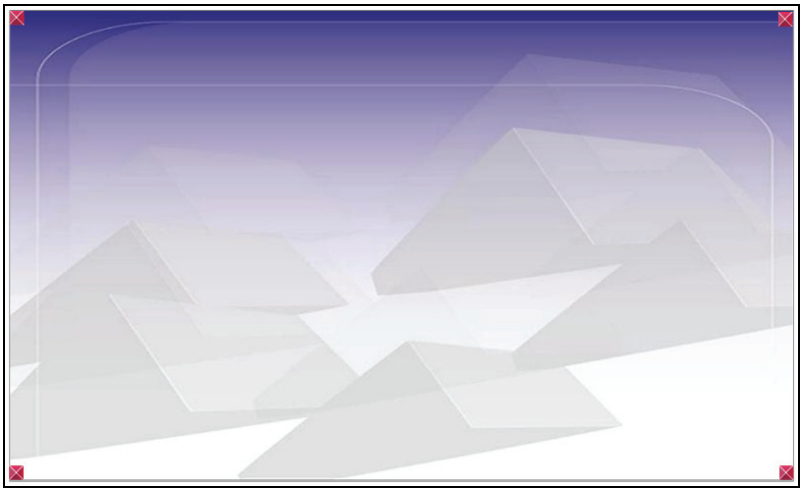


2. Unpack the 5 V 3 A DC power adapter from the box and plug the DC cord of the power adapter to the power jack on the rear of the TACP. Rotate the locking screw clockwise to ensure it is firmly screwed into the power jack.
3. Plug the power adapter to an electrical outlet. When the power adapter is connected, power is being supplied from the electrical outlet to the power adapter and onto your TACP.
4. Make sure both dip switches are set to the off position (flip up).

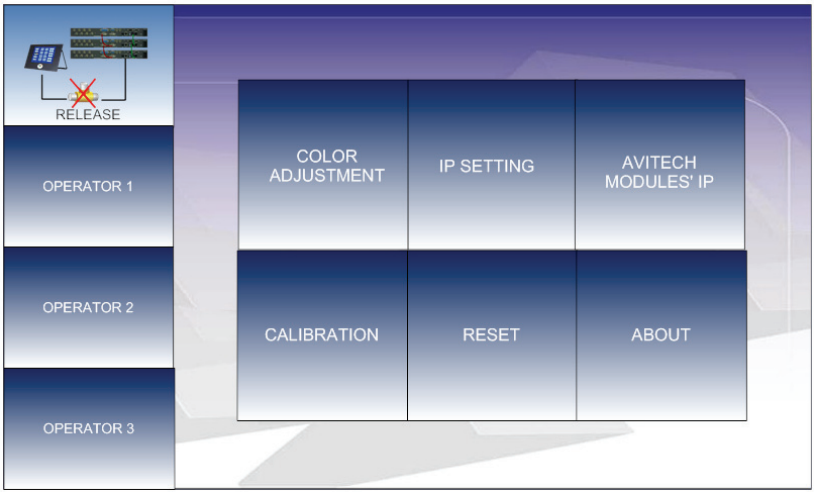


5. Turn on the TACP by pressing the power switch ⏻ to the "**I**" (on) position.

6. Perform screen calibration (when using your TACP for the very first time). Use your finger tip or a stylus to tap on the four red cubes appearing on the four corners of the touch panel. Make sure the color of each cube turns from red to green .



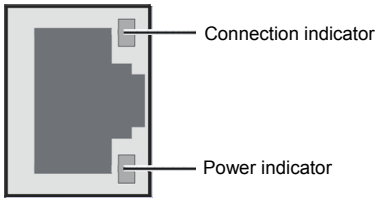
7. When it is finished, you will see the menu mode main page loading up.



8. Connect the Ethernet cable to the Ethernet port on the TACP and the other end to the PC or the Ethernet switch/hub.

9. Make sure the power LED and the connection LED glows yellow. When the power is on but the network connection is down, the connection LED will be off and the power LED will glow orange.

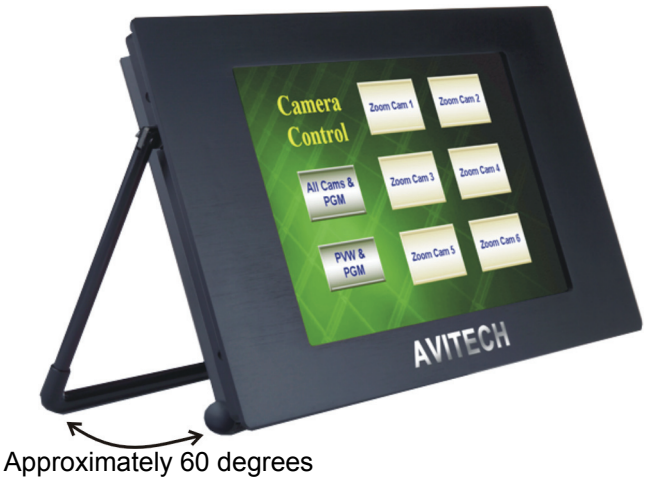
Power Indicator	Glows yellow when the TACP has an available connection to LAN.
	Glows orange when the power is on but the connection to LAN is down.
Connection Indicator	Glows/blinks yellow when the TACP has an available connection to LAN / is accessing the LAN.
	Is off when the connection to LAN is down.



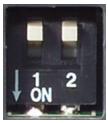
Multiple TACP Setting

To set up multiple Avitech TACP, perform the following steps:

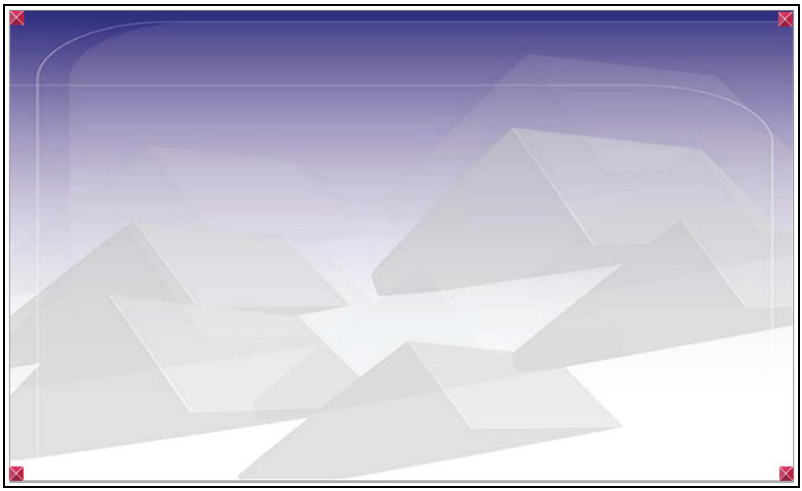
1. Unpack the TACP from the EPE bag and set the stainless steel kick stand at approximately 60 degree angle on a steady surface.



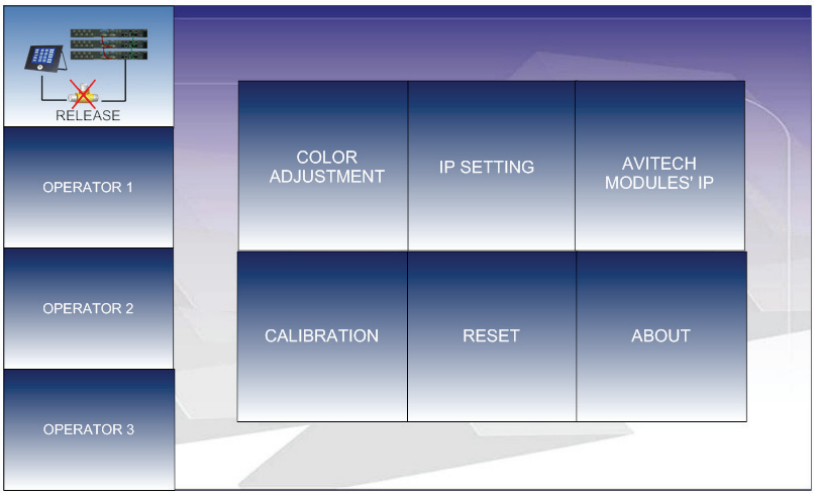
2. Unpack the 5 V 3 A DC power adapter from the box and plug the DC cord of the power adapter to the power jack on the rear of the TACP. Rotate the nut clockwise to ensure it is firmly screwed into the power jack.
3. Plug the power adapter to an electrical outlet. When the power adapter is connected, power is being supplied from the electrical outlet to the power adapter and onto your TACP.
4. Make sure both dip switches are set to the off position (flip up).



5. Turn on the TACP by pressing the power switch to the "**I**" (on) position.
6. Perform screen calibration (when using your TACP for the very first time). Use your finger tip or a stylus to tap on the four green dots appearing on the four corners of the touch-screen. Make sure the color of each dot turns from red to green .



7. When it is finished, you will see the menu mode main page loading up.



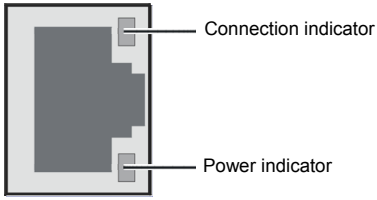
8. Connect the Ethernet cable to the Ethernet port on the TACP and the other end to the Ethernet switch/hub.

   NOTE: It is highly recommended that you connect the TACP to a clean local area network (LAN) to ensure a steady connection throughput.

9. Perform steps 1 to 8 for the other TACPs that will be used.

10. Make sure the power LED and the connection LED glows yellow. When the power is on but the network connection is down, the connection LED will be off and the power LED will glow orange.

Power Indicator	Glows yellow when the TACP has an available connection to LAN.
	Glows orange when the power is on but the connection to LAN is down.
Connection Indicator	Glows/blinks yellow when the TACP has an available connection to LAN / is accessing the LAN.
	Is off when the connection to LAN is down.



Rack Mounted TACP Setting

To set up the rack-mounted Avitech TACP, perform the following steps:

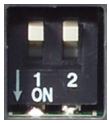
1. Unpack the TACP from the EPE bag and carefully place the TACP face down on the desk.
2. Unpack two pieces of rack mount face plate from the paper carton.
3. Pull out the stainless steel kick stand to a 90 degree angle so that it is perpendicular with the TACP's LCD panel.

4. Place one piece of the rack mount face plate beside the TACP (still facing down) so that the two screw holes located on the face plate are aligned with the screw holes located on the side of the TACP.

5. Repeat the same steps for the other side.

Upon securing the screws, this is what the front view looks like.

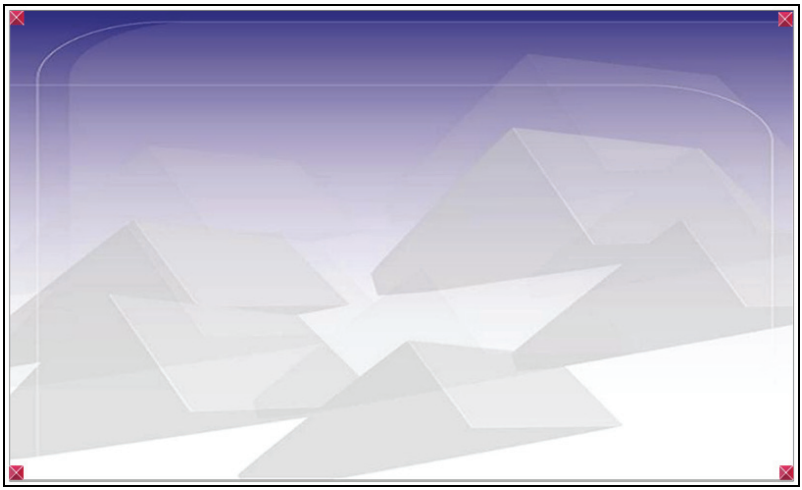
6. Secure the rack mount panel to the server rack.
7. Unpack the 5 V 3 A DC power adapter from the box and plug the DC cord of the power adapter to the power jack on the rear of the TACP. Rotate the nut clockwise to ensure it is firmly screwed into the power jack.
8. Make sure both dip switches are set to the off position (flip up).



9. Plug the power adapter to an electrical outlet. When the power adapter is connected, power is being supplied from the electrical outlet to the power adapter and onto your TACP.

10. Turn on the TACP by pressing the power switch to the "**I**" (on) position.

11. Perform screen calibration (when using your TACP for the very first time). Use your finger tip or a stylus to tap on the four green dots appearing on the four corners of the touch-screen. Make sure the color of each dot turns from red to green .

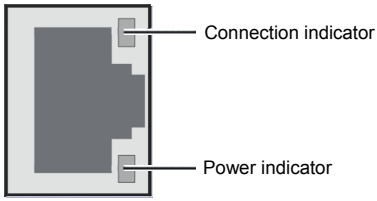


12. When it is finished, you will see the menu mode main page loading up.

13. Connect the network cable to the Ethernet port on the TACP and the other end to the PC or the Ethernet switch.

14. Make sure the power LED and the connection LED glows yellow. When the power is on but the network connection is down, the connection LED will be off and the power LED will glow orange.

Power Indicator	Glows yellow when the TACP has an available connection to LAN. Glows orange when the power is on but the connection to LAN is down.
Connection Indicator	Glows/blinks yellow when the TACP has an available connection to LAN / is accessing the LAN. Is off when the connection to LAN is down.



1.9 Setting Up the Avitech Multiviewer Modules

To setup the Avitech Multiviewer modules, perform the following steps:

1. Cascade the Avitech Multiviewer modules by following the installation instruction from the respective product user's manual.

2. Launch the Galaxy program to assign the Avitech Multiviewer module's hardware configuration such as group ID, module ID, output display layout, connection setting, etc. Then save the new configuration to flash memory before exiting the Galaxy program.

> **NOTE:** The Galaxy program and user's manual can be downloaded from the following location **`http://avitechvideo.com/download_software.shtml`**.

2 Avitech Control Panel

This chapter familiarizes you with configuring the Avitech software Control Panel (ACP) for use.

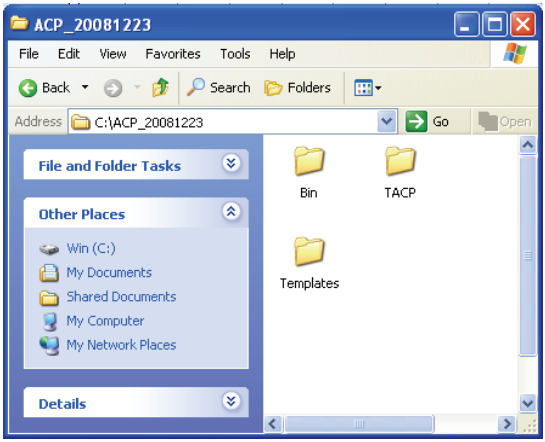
2.1 Introduction

To create the configuration files for the TACP, you need to run the Avitech software Control Panel (ACP). The supported operating systems are Microsoft Windows XP, Windows Vista, Windows Server 2003, and Windows 2000.

> **IMPORTANT** (**for Windows 2000 user):** download the plug-in (**`gdiplus.dll`**) from the Microsoft® website at **`http://www.microsoft.com/downloads/details.aspx?FamilyID=6a63ab9c-df12-4d41-933c-be590feaa05a&displaylang=en`** and follow the on screen instructions to install it.

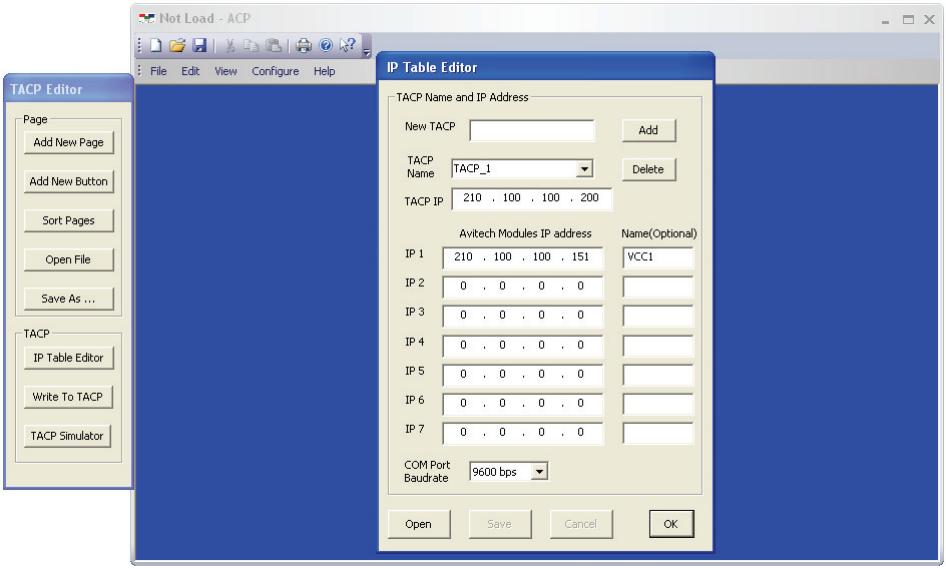
The ACP application files are found in three folders on the included utility disc (under the **`ACP_yyyymmdd`** folder) or can be downloaded from the Avitech web site, copy and save these to the host PC –

- **Bin** folder: where the program **`ACP-V201.exe`** is located.
- **TACP** folder: where the final configuration is recommended to be saved.
- **Templates** folder: where the graphic images are stored.



NOTE: It is highly recommended to set the screen resolution at 1280×1024 when using the ACP.

To start using the ACP, double-click **ACP-V201.exe** in the **Bin** folder. The following screen appears.



The blue background is an 800×480 window, which is the same dimension as the touch panel. From here, you will create your own graphic layout (hereafter called a page) for the TACP. What you see is what you get when you finish the page(s) layout and send it to the TACP. This means that what you see on this 800×480 window will be completely copied over.

The **TACP Editor** window performs the function of creating each 800×480 page, and of transferring the configured pages (hereafter called a configuration).

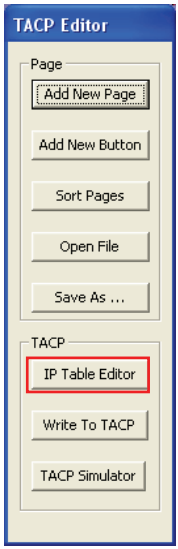
The first step in setting up the configuration is via the **IP Table Editor** window.

2.2 Configuring the ACP

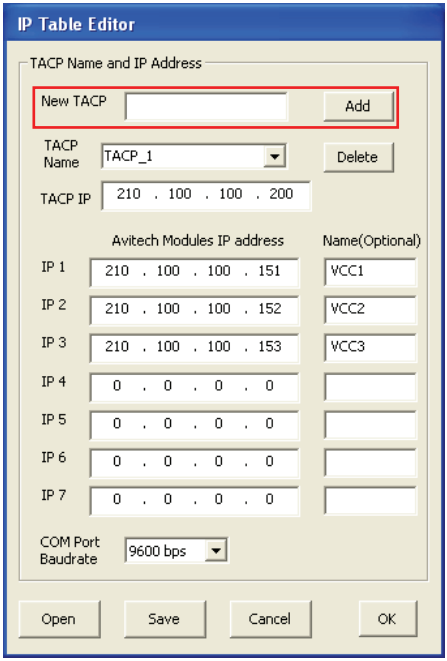
IP Table Editor

Upon starting the ACP, create a new TACP IP table first. To create a new IP table, perform the following steps:

1. Click the **IP Table Editor** button if the **IP Table Editor** window was closed.

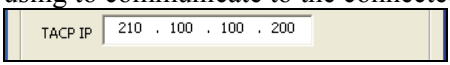


2. Enter a name on the **New TACP** window to create a new TACP account. Then click the **Add** button.

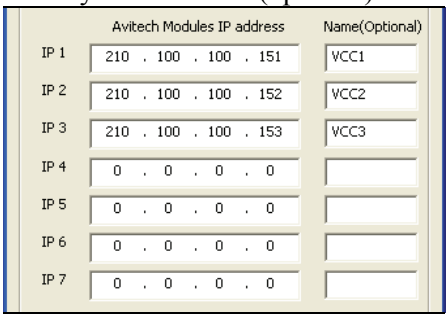


3. Remove the unwanted TACP name by clicking the **TACP Name** drop down list and selecting the particular name, then click **Delete**.

4. Enter the IP address for your TACP. Or, use the PC's IP address that you are using to communicate to the connected modules.

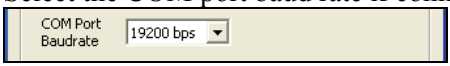


5. Enter the IP address(es) of the Multiviewer modules that will be connected to the TACP. Each TACP can directly communicate with up to seven IP addresses and one RS-232 connection. Then enter a name to help you identify each module (optional).



NOTE: The **Avitech Modules IP Address** is the IP address of the master module (the Avitech module that is communicating with the TACP through a direct cable connection) for each cascaded system.

6. Select the COM port baud rate if connecting to a module via RS-232 cable.



7. Click **OK** to apply the settings or click **Cancel** to discard the changes and exit the **IP Table Editor** screen.

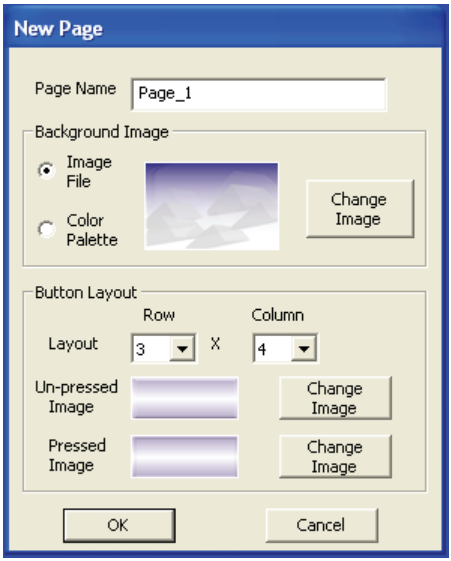
NOTE:

- Click **Save** to store the IP table list and save the current IP setting for future use. You will be prompted to create a filename (e.g., by typing **`TACP_01`** the filename **`TACP_01.dat`** would be created).
- Click **Open** to retrieve the pre-saved IP table list.

Page

Add New Page

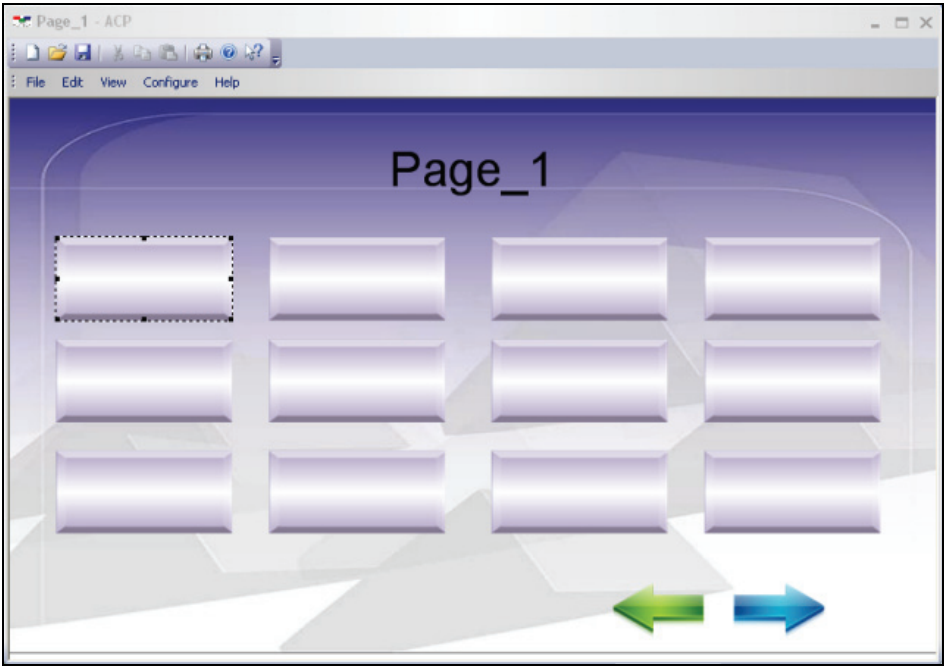
Upon clicking the **Add New Page** button, the following window appears.



Function	Description
Page Name	Assign a name for the new page which can help identify the purpose of the page.
Change Image (Background Image)	Upon clicking this button the **Image Selector** window will pop up. You can search the **Background** folder under the **Templates** directory. You can also search from the directory tree of the entire PC for the desired background image. The accepted graphic formats are: **BMP**, **PNG**, **JPG**, and **TIFF**. **NOTE:** To change the background image in the future, just double-click anywhere on the background and the **Page Properties** window appears.
Change Image (Color Palette)	Upon clicking this button the **Color Selection Palette** menu will pop up. You may select from the commonly used color table or click **More Colors** for more selection.

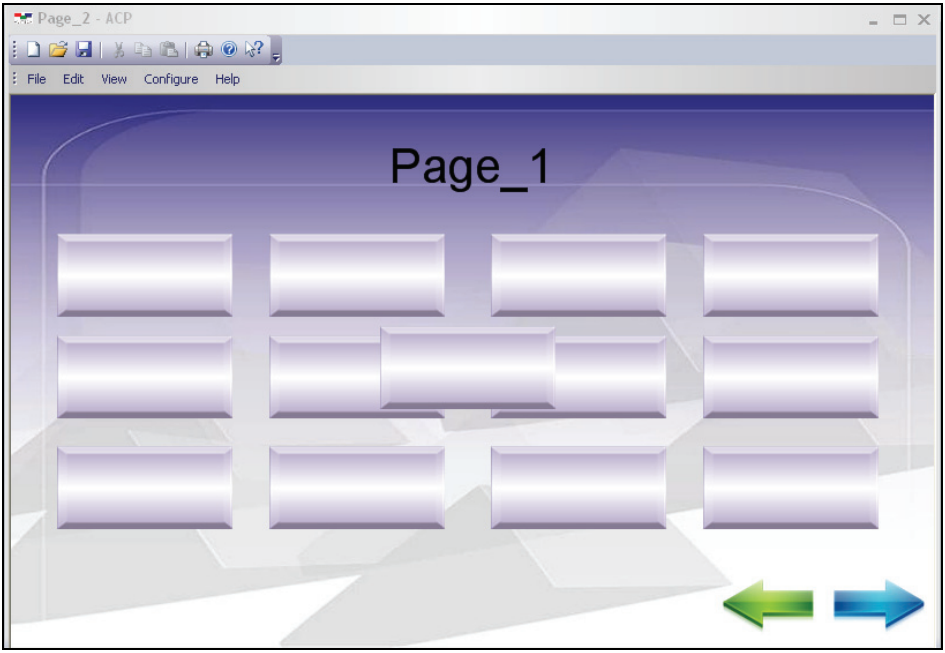
Function	Description
Layout (Row × Column)	The two drop down selector allows you to customize the display matrix for the operation buttons appearing on the page (e.g., selecting 2 × 3 will produce a 6 button layout in a 2 by 3 matrix on this page) and will automatically scale the buttons to fill up the page. Therefore, the more buttons displayed on one page, the size of each button will initially turn out smaller. However, the size of each button is customizable, movable, and removable after creation.
Change Image (Un-pressed Image**)** (Pressed Image)	Upon clicking this button the **Image Selector** window will pop up. You can search the **Button** folder under the **Templates** directory. You can also search from the directory tree of the entire PC for the desired button image. The accepted graphic formats are: **`BMP`**, **`PNG`**, **`JPG`**, and **`TIFF`**. "Un-pressed" refers to the inactive state of the button. "Pressed" refers to state when using the fingertip or stylus to tap on the button. **NOTE:** To change the button image in the future, right click the particular button and select **Button Properties** to modify it.

After making the desired selections click **OK** and the following 800×480 pixel window with customized layout will appear.



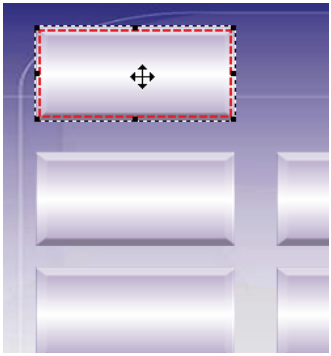
Add New Button

Upon clicking the **Add New Button** button on the **TACP Editor** window, a new button having the same attributes as the previously set buttons would appear on the middle of the screen.

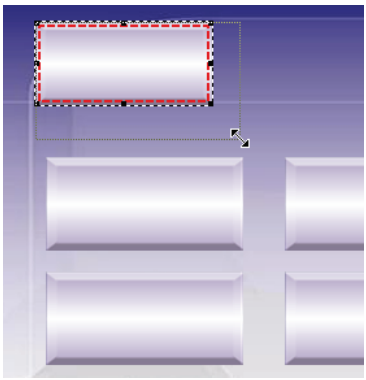


Moving and Re-sizing Button

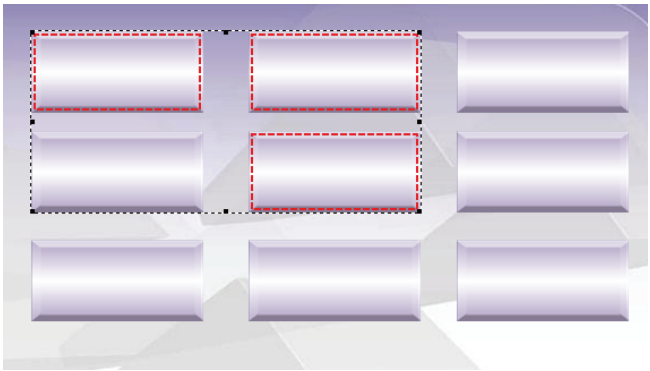
To move the particular button, use the mouse to click and highlight it. Place the mouse over the button and a cross symbol will appear. Click and hold the mouse button until the on screen button moves to the desired location.



To re-size the button, use the mouse to click and highlight it. Move the mouse to the border of the button until an arrow sign appears, click and drag the mouse button to change to the desired size.



Press the **Ctrl** key and click the mouse button to select multiple on screen buttons.



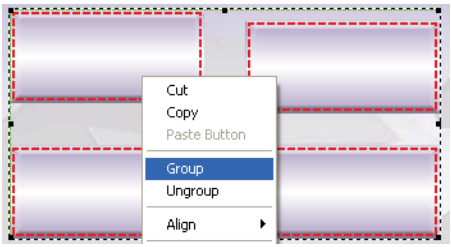
You can also use the above method to drag or re-size multiple buttons.

Copy / Paste Buttons

Right-click a particular button, then select **copy**.

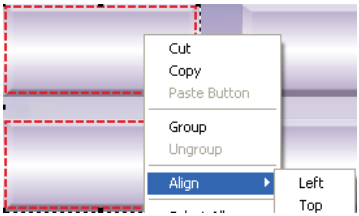
Then click **Paste** and the duplicate button appears.

Group / Ungroup Buttons



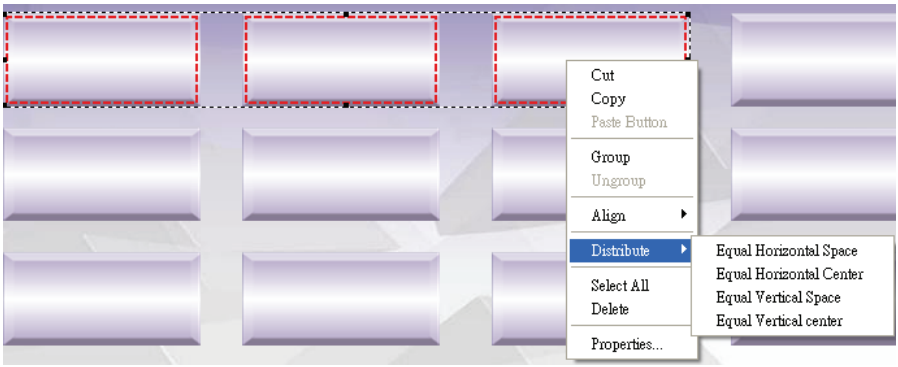
Press and hold the **Ctrl** key and click multiple buttons to group multiple buttons. You can also right-click and drag the mouse button to highlight the enclosed on screen buttons. Then right-click the mouse on the grouped buttons and click **Group**. The grouped buttons will retain its grouping until you select **Ungroup**. Grouped buttons can be moved, re-sized, as well as change its global properties at the same time.

Align



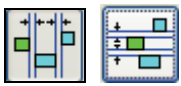
By clicking to select more than one button allows you to perform button alignment. Click **Left** to align buttons to the left border of the last button. Click **Top** to align buttons to the top border of the last button.

Distribute



By clicking to select three or more buttons, you can use the **Distribute** function.

Selecting **Equal Horizontal** / **Vertical Space** allows you to spread the page with evenly spaced buttons.



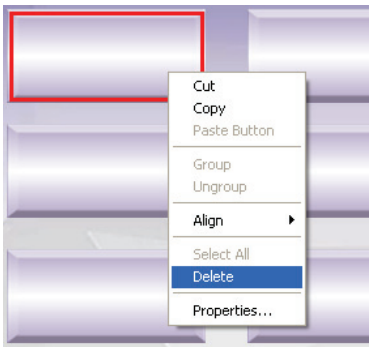
Selecting **Equal Horizontal** / **Vertical Center** allows you to spread the buttons on the page from the center of one button to another.

Select All

Right-clicking the mouse on any button on the screen and clicking **Select All** will highlight all the buttons.

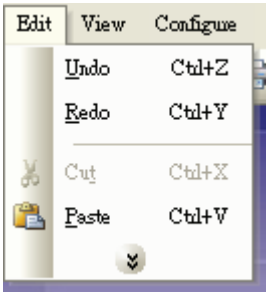
Delete Button

To remove or delete a particular button, right-click the mouse on the selected button, then select **Delete**. Or, press the **Delete** key on the keyboard after selecting the button.



Undo / Redo

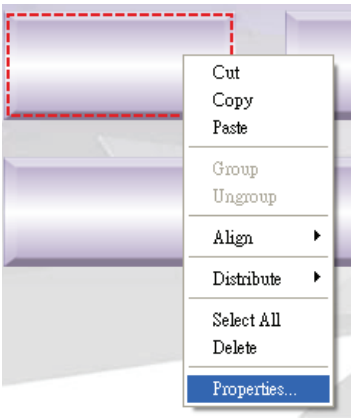
Upon clicking the **Undo** button (or press **Ctrl** + **Z**) it allows you to cancel the last action including button resize, location, delete, add page, delete page, background, and order settings. The **Redo** button (or press **Ctrl** + **Y**) allows you to redo the previous action that was cancelled by the **Undo** button. The **Undo**/**Redo** button allows you to cancel or redo unlimited steps.



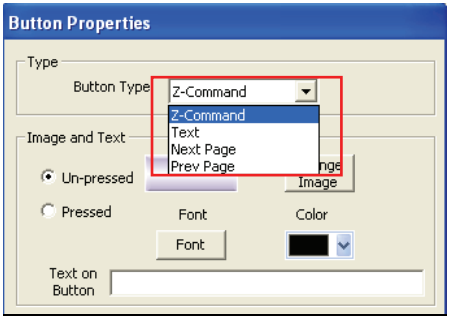
Setting the Button Attributes

To set up the button attributes, perform the following steps:

1. Right-click the mouse on the button you want to set the attributes and click **Properties.**

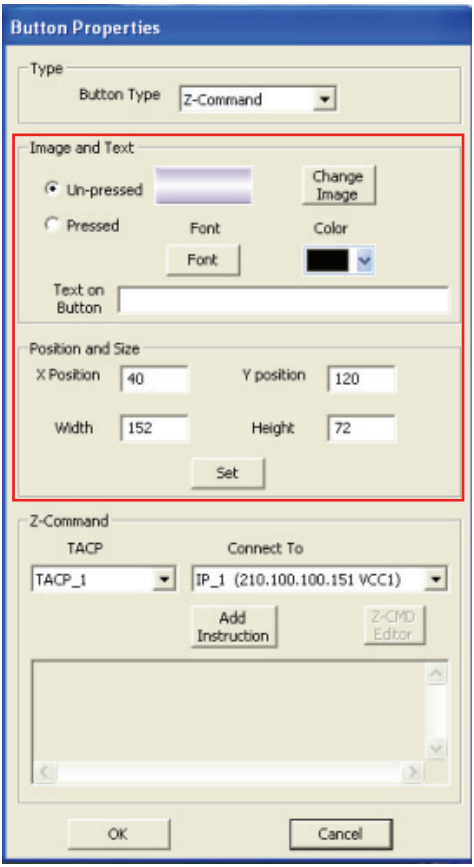


2. The following screen appears. On the **Type** portion, you may assign the button type.



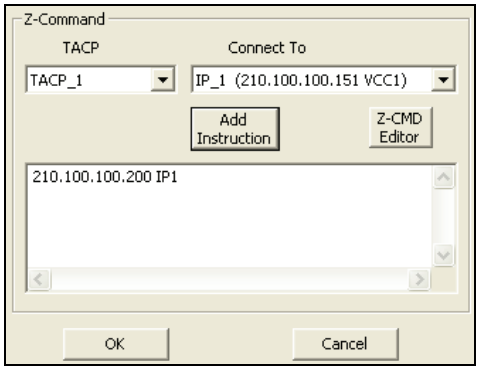
- **Z-Command**: button that stores the ASCII command lines.
- **Text**: contains the text box for the title.
- **Next/Prev Page**: button for turning the page.

3. On the **Image and Text** portion, you may want to change the image for both **Un-pressed** and **Pressed** buttons; add text by entering it on the **Text on Button** window, change the font style by clicking on **Font**, and set the font color by clicking on the **Color** drop down menu.
   On the **Position and Size** portion, you may want to fine tune the button's position and size by entering values on the **X Position**, **Y Position**, **Width**, and **Height** windows. Then click **Set**.



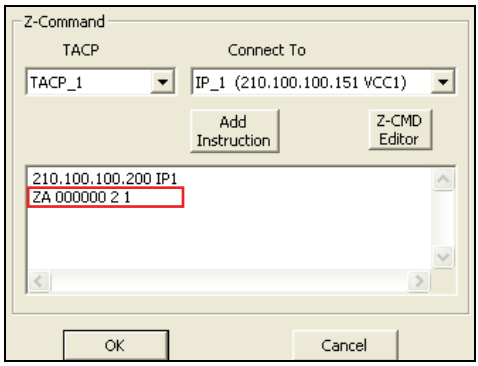
NOTE: The value of the button position and size has to be in increments of eight pixels. If the value you enter is not divisible by eight, ACP will automatically set the lower number that is divisible by eight as the final value (e.g., if you entered 47, ACP will then set it as 40).

4. On the **Z-Command** portion, click the **TACP** drop down menu to select the desired TACP, and click the **Connect To** drop down menu to select the connecting IP address. Then click the **Add Instruction** button and you will see a message string with an IP address in the instruction box. Also, the **Z-CMD Editor** button becomes active.

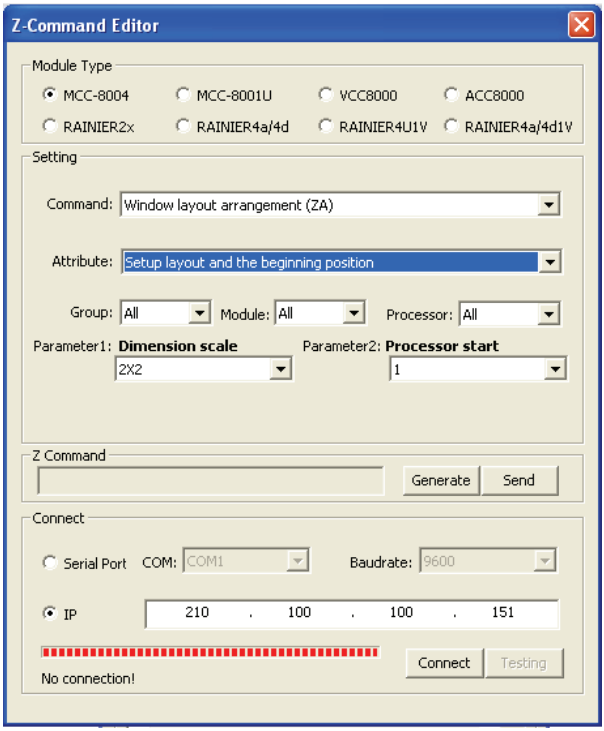


For example, on the instruction box above **`210.100.100.200`** is the TACP's IP address and **`IP1`** is the connected module's IP #. This means that the **`IP1`** interface of TACP with IP address **`210.100.100.200`** will send out the below Z command.

5. If you are familiar with the ASCII Z commands, you can enter the Z command under the IP address text string (for more information on the ASCII Z commands, refer to a later chapter).

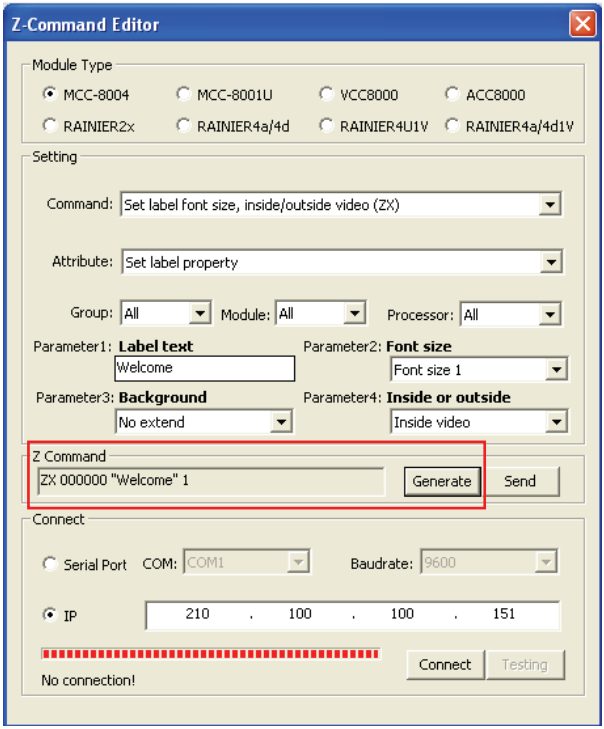


6. If you prefer to use the GUI (graphical user interface) Z command generator, click the **Z-CMD Editor** button. The following **Z-Command Editor** window appears.

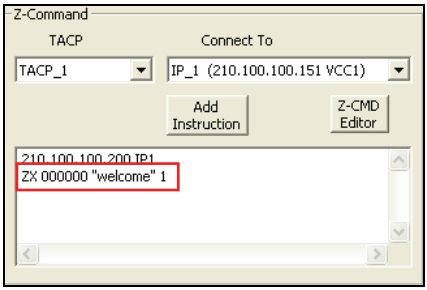


7. Select the **Module Type** by clicking on the radio button, click on the **Command** and **Attribute** drop down menus to select the desired Z command and its attribute. Then select the **Group**, **Module**, and **Processor** that you wish to send the Z command to. Select the **Parameter 1** and **2** to complete the setting (some Z commands will have more parameters to setup).

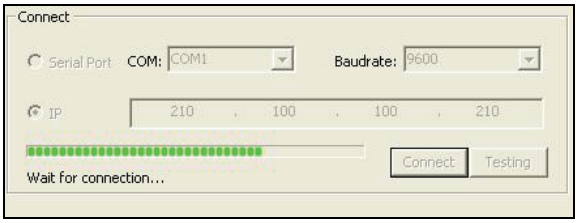
8. Click the **Generate** button to display the ASCII Z command on the **Z Command** window.



9. Click the **Send** button to send the Z command back to the instruction box in the **Button Properties** window.



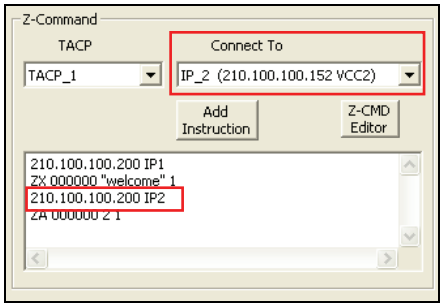
10. To test the Z command on the module, on the **Connect** section, select the connection method and click **Connect** to link the configuring PC to the module.



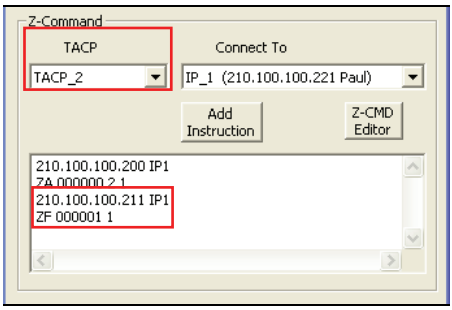
> **NOTE:** Selecting the **IP** connection method will allow detection of the master module type, but selecting **Serial Port** will not.

11. Repeat the above steps if you wish to add more than one command to each button.

12. If within the same button, you wish to send Z command to a different module with a different IP address, return to the **Z-Command** portion of the **Button Properties** window. Change the IP address on the **Connect To** drop down menu, then click **Add Instruction**, and add the Z command that you wish to send to that IP address.

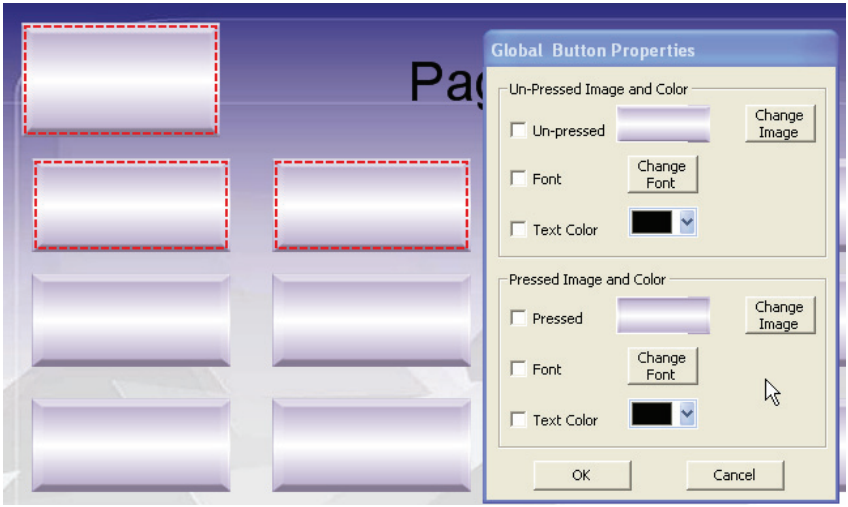


13. For multiple TACP/ACP setup, one button can contain multiple Z commands to various TACP.

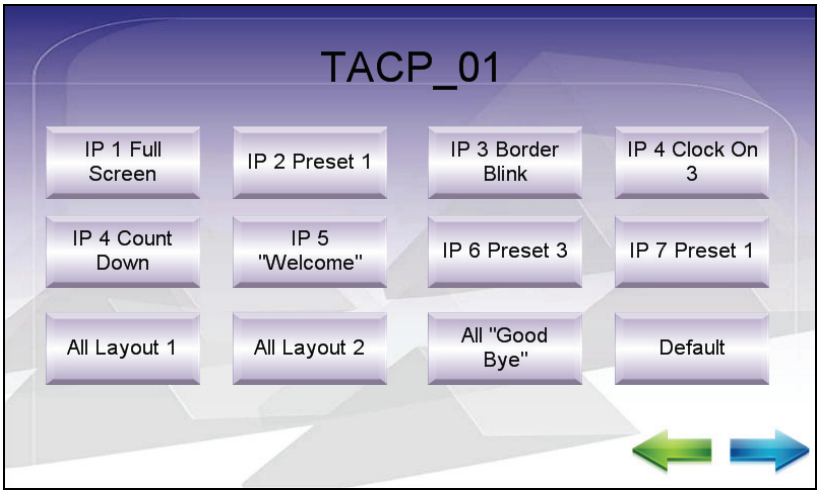


Properties (Global Button)

Right-click the mouse on any button and select **Properties** to access **Global Button Properties** page. **Global Button Properties** allows you to change the grouped button's image, font, and font color. Only the options selected (with check mark on the check box) will the button's properties be set.



The following shows a sample finished page.



Add New Page

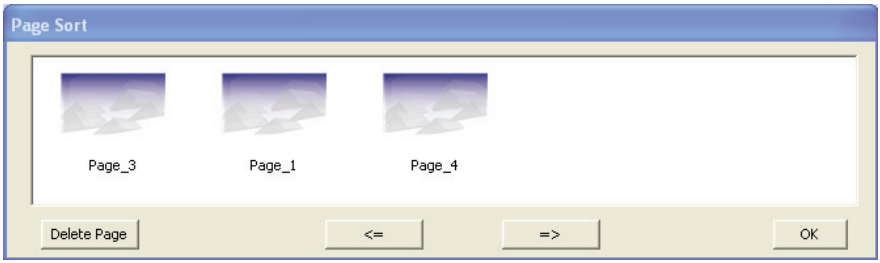
Click **Add New Page** to create more page layouts.

Sort Pages

Upon clicking the **Sort Pages** button, the **Page Sort** window would appear on screen allowing you to switch the page sequence after creating multiple pages. Click to highlight the page you wish to swap the order, then use the arrow buttons to move forward or backward. You may also use the mouse to drag-and-drop the page to change the page order.

Press the **Delete Page** button to remove the unwanted page. Or, press the **Delete** key on the keyboard to delete the highlighted page.

One click on the selected page will bring up that page to the main window.



Page Right-click Menu

Upon right-clicking the mouse anywhere on the page, the following menu will pop-up.

Select **Cut** / **Copy** / **Paste Page** to remove (**Cut**) or duplicate (**Copy** / **Paste Page**) a page, including the graphic layout and Z commands.

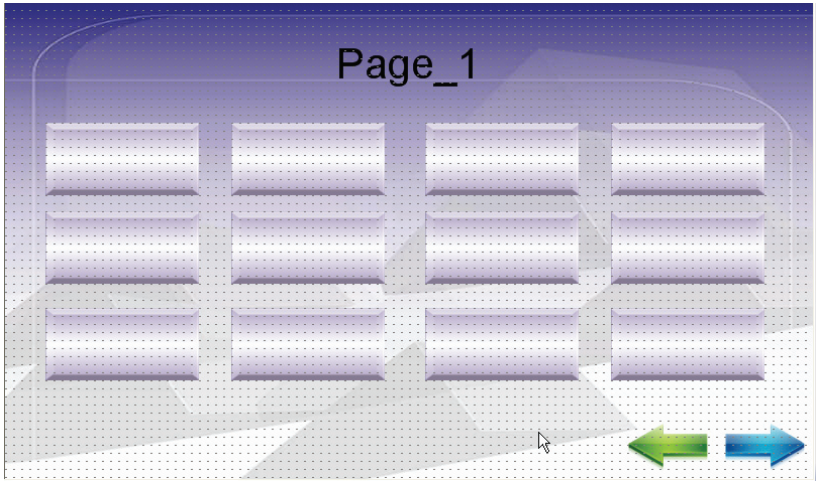
Select **Prev. Page** / **Next Page** to move the position of the present active page to the previous or next page.

Select **First Page** / **Last Page** to move the position of the present active page to the first or last page.

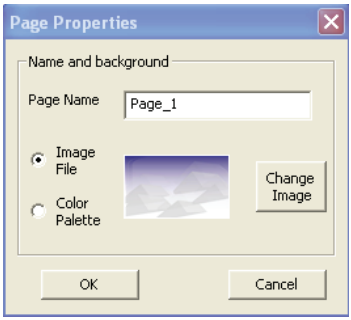
Select All Pages will highlight all the pages.

Select **Delete** to delete the whole page.

Select **Grid** to display the grid dots as guide lines to help you align the buttons on the page.



Select **Properties** and the **Page Properties** window will pop up. This allows you to change the **Page Name** (title) and the background image.



TACP Editor Dialog – Save As

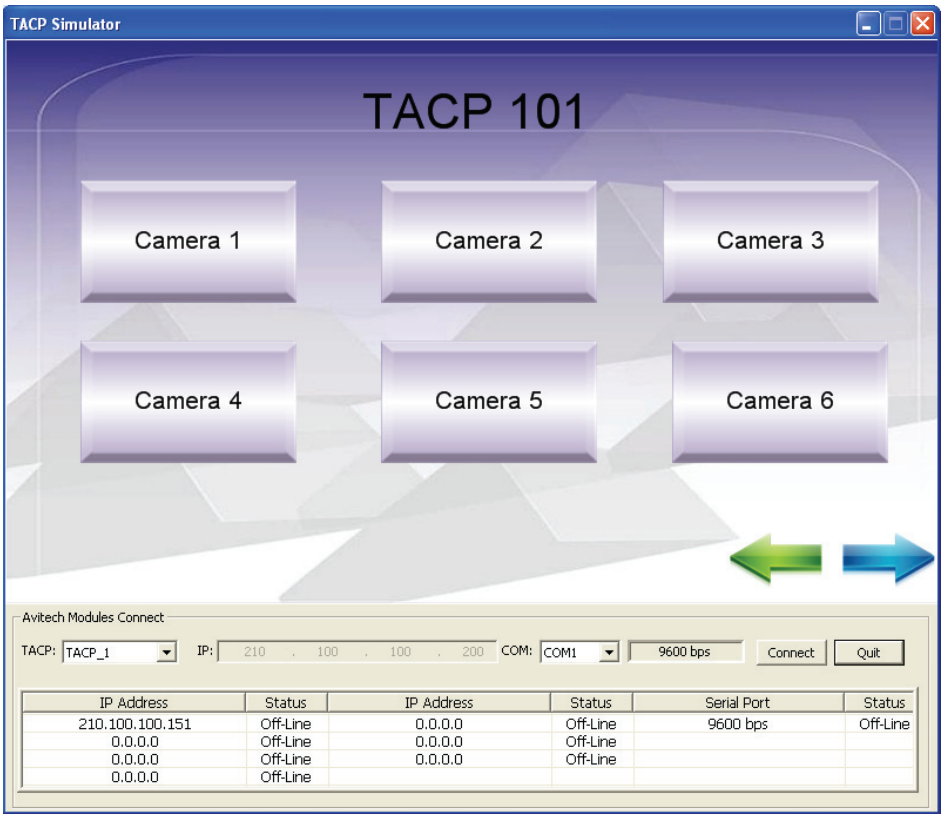
Upon clicking the **Save As** button on the **TACP Editor** window, the **Save As** window would appear on screen allowing you to save the current ACP (**`*.TACP`**) file. The default filename would be the title of the page.

TACP Editor Dialog – Open File

Upon clicking the **Open File** button on the **TACP Editor** window, the **Open** window would appear on screen allowing you to open a previously saved ACP (**`*.TACP`**) file.

TACP Editor Dialog – Simulation

Upon clicking the **Simulation** button on the **TACP Editor** window, the **TACP Simulator** window will pop-up. This allows you to run the button function tests before downloading the configuration to the TACP.



The main window shows the page you just created.

The **Avitech Module Connect** portion allows you to select which TACP you wish to simulate.

Upon selecting the desired TACP, the corresponding module's **IP Address** will be displayed. Make sure the modules shown are the ones you are going to connect to and they are set with the correct **IP Address**. If not, return to the **IP Table Editor** to update the IP address. Or modify the IP address on the modules (refer to Appendix C for instructions on how to change the module IP).

Connect the Ethernet cable between the TACP and the modules. During multiple IP connection, the Ethernet switch/hub is required.

Click the **Connect** button when everything is ready.

Each IP connection will take about four seconds so the total connection time when connecting to seven IPs may take up to 30 seconds. When the connection is set, the **Status** column will change from **Off-line** to **OK**.

NOTE: A serial port connection will not perform the connection check.

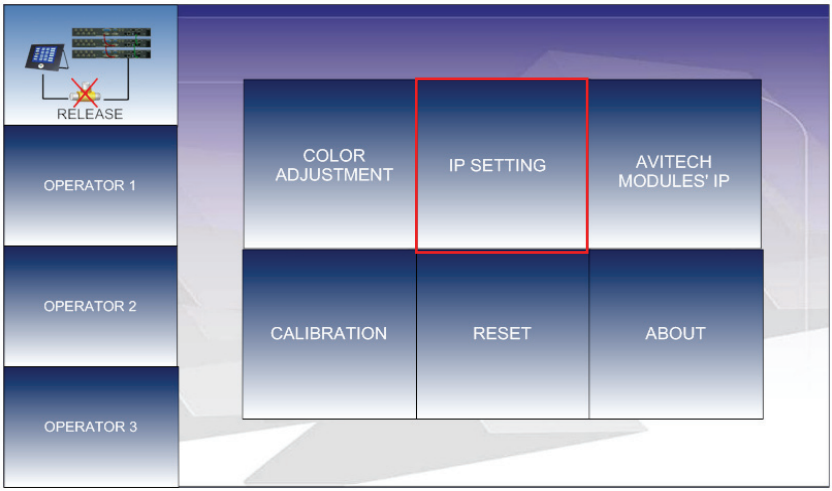
If after 30 seconds has elapsed and the connection still cannot be set, try again by clicking the **Connect** button. Or, click **Quit** to exit and check the physical IP setup.

Writing the Configuration File to TACP

This section shows you how to transfer the configuration file to the TACP.

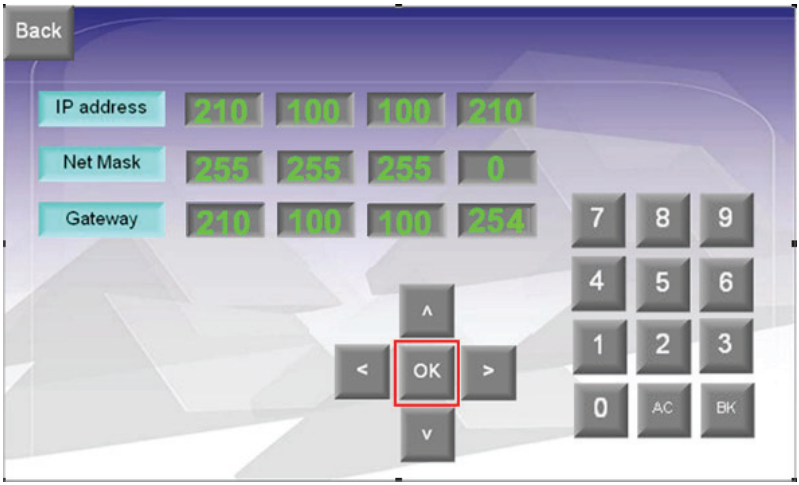
Setting Up the TACP

1. Power on the TACP and the main page will be displayed. Tap the **IP Setting** button to access the IP setting page.

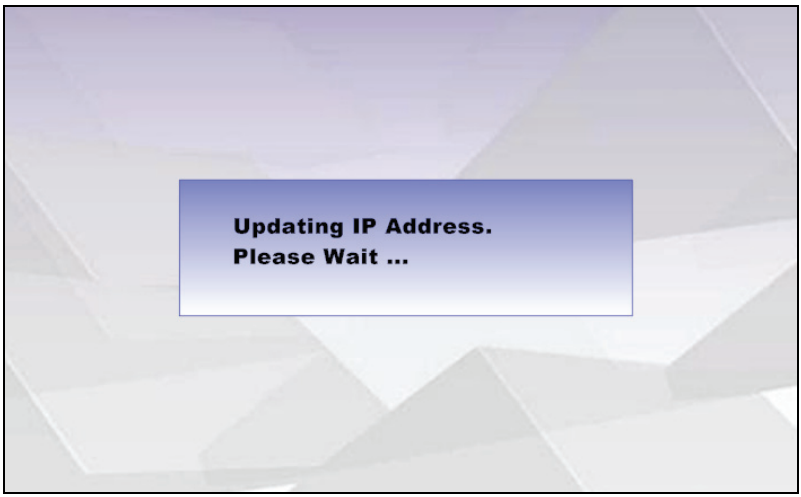


2. Use arrow keys to move to the column you wish to change.
3. Use the on screen keypad to change the number.
4. Set your TACP's IP address, Netmask, and Gateway address on the **IP Editor** window
   (e.g., IP: **`210.100.100.210`**; Netmask: **`255.255.255.0`**;
   Gateway: **`210.100.100.254`**).

5. Click the **OK** button when finished.



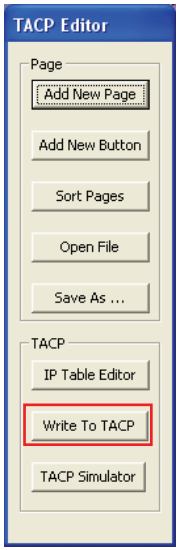
6. The next screen will appear. When it is done, the TACP will automatically re-start.



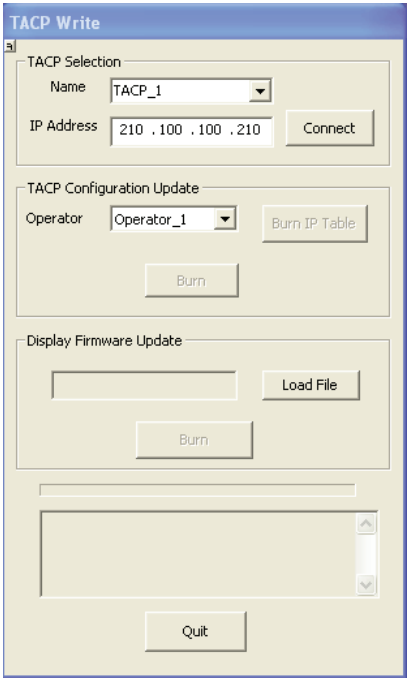
NOTE: For more information on how to configure the IP address from the PC, refer to Appendix C.

From the ACP to the TACP

Return to the ACP and click the **Write to TACP** button to access the **TACP Write** window.



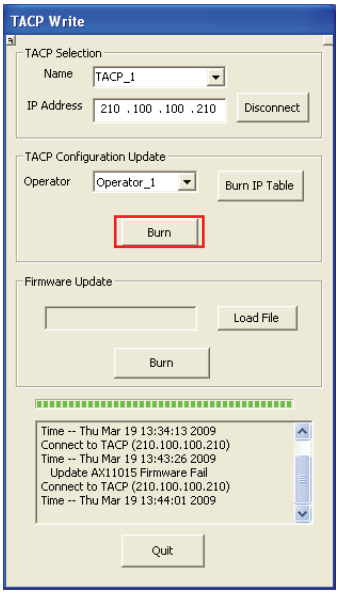
1. Select your TACP name from the **Name** drop down menu. Check if the **IP Address** is same as the TACP's you just setup.



2. Select **Operator_1** ~ **Operator_3** on the **TACP Configuration Update** section. Click **Connect** to connect to the TACP over IP.

> **NOTE:** The following are the configuration size limitations:
> - Maximum configuration size: 192 KB.
> - Graphic button and layout – 1 MB.
> - Z command instruction string size limitation for each button is 4 KB.
> - One TACP can save up to three different configurations (with the same module's IP table).

3. When the ACP and the TACP is connected, the progress bar will turn green.

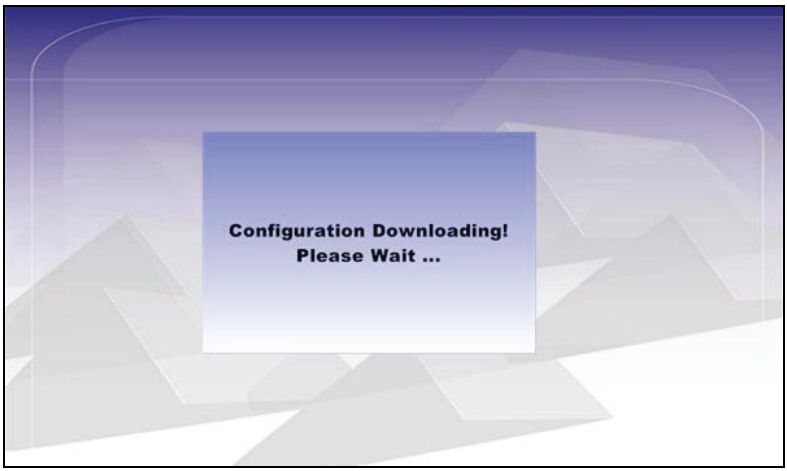


4. Click **Burn** to burn the configuration, including the IP address table, page layouts, buttons, and Z command strings to the TACP.

> **NOTE:** Click **Burn IP Table** only if you have already sent out the configuration but wish to update the IP address only.

Checking the TACP

1. When the TACP is receiving files, it will show the following message.



2. When it is done, it will go back to menu mode main page.

3 Communicating With Multiviewers

This chapter familiarizes you with setting up the PC to communicate with Multiviewers.

3.1 Introduction

Each TACP can directly communicate with Multiviewer modules via seven different IP and one RS-232 connection. You can use the ACP to assign the IP address for each Multiviewer module or Multiviewer module groups. Within each IP and RS-232 connection you can cascade up to 15 Multiviewer modules.

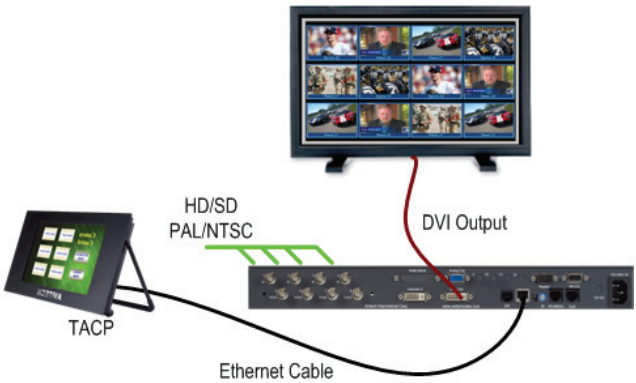
Peer-to-peer communication functionality extends the controlling power of the TACP. For example, when TACP 1 is sending the ASCII commands to Multiviewer modules belonging to TACP 2, TACP 1 will pass the commands to the IP addresses for both TACP 2 and Multiviewer modules belonging to TACP 2. After TACP 2 receives the request packet, it will decompress the packet and then send out commands to the designated Multiviewer modules belonging to it.

The ACP also supports run time peer-to-peer communication capability. Just by clicking on a pre-configured **`xxx.tacp`** file, you can start controlling Multiviewers right from your PC.

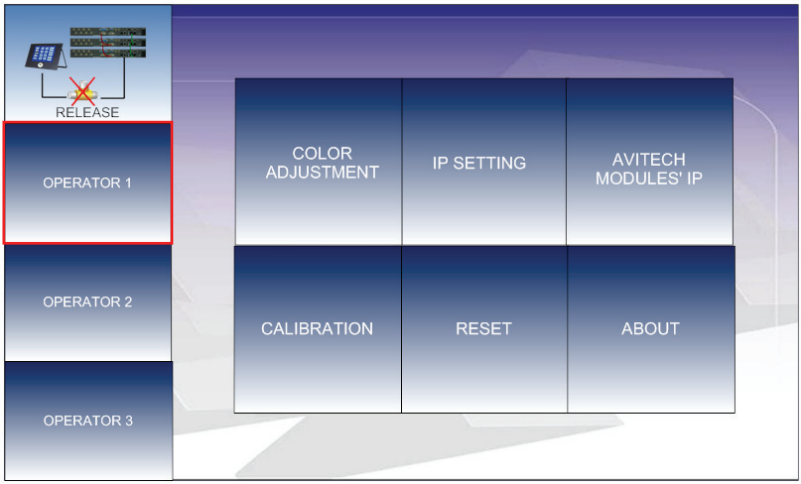
3.2 Connecting TACP to Modules

> **NOTE:** Before connecting the TACP and the modules, make sure to set the modules' IP addresses first (refer to Appendix C for details).

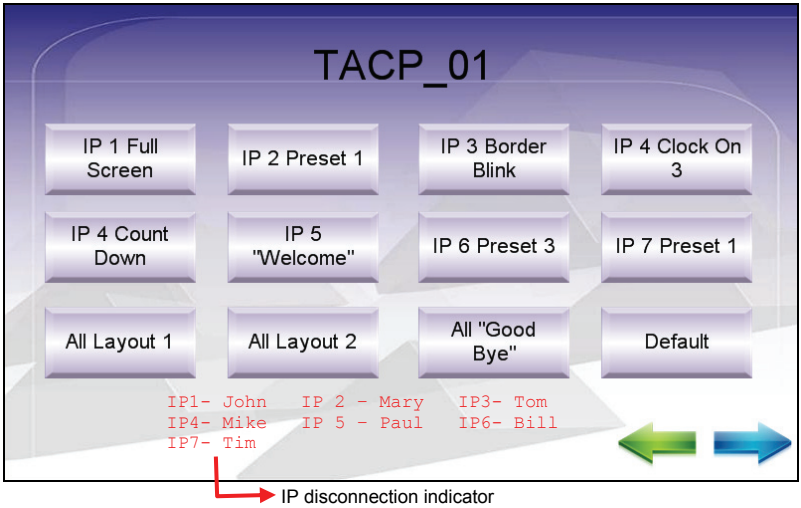
1. Unplug the Ethernet cable originally connecting the ACP to the TACP from the PC end, and then connect it to the module's IP port. So that now the TACP and the modules are connected via the Ethernet cable.



2. Make sure that the TACP is powered on.
3. Click the **OPERATOR 1** ~ **3** button on menu mode.



4. The IP disconnection indicator will initially show on the panel indicating no connection.



> **NOTE:** It normally takes about four seconds for each IP to make the connection. The network bandwidth will affect the connection speed and quality.

5. The panel will be ready to use when the IP disconnection indicator disappears from the screen.

> **NOTE:** Make sure all slave modules have the same baud rate as the master module to allow the Z commands to be passed from the master module to the slave modules (refers to Avitech modules that are cascaded with the master module and also accepts Z commands passed by the master modules) over a RS-485 cascade cable.

3.3 ACP Run-Time

The ACP Run-Time feature allows the PC to function as a TACP. This allows the PC to perform module communication without the need to pass the configuration information through the TACP by performing the following steps:

Set up the configuration

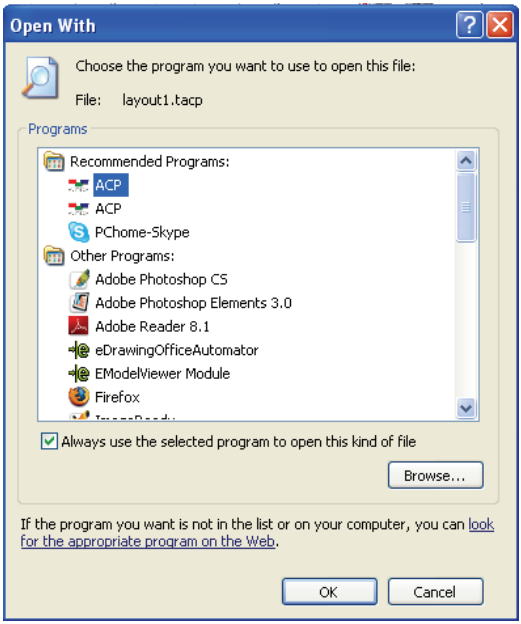
1. On the **IP Table Editor** window, assign a name for your ACP and set the PC's IP address as the TACP's IP address.
2. Create new button(s) and edit the page layout (see Chapter 2 for details).

3. Upon saving the configuration to the PC, a new file **`xxx.tacp`** will be created.
4. Exit the ACP program before going to the next step.

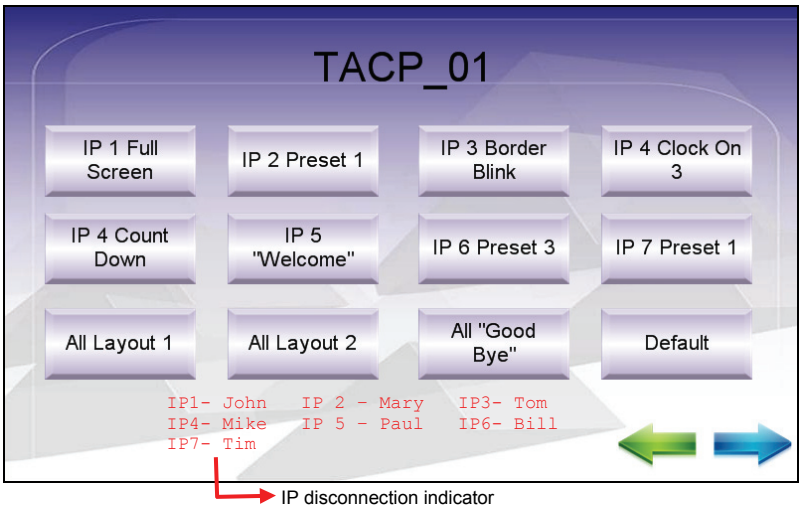
Execute the ACP Run-Time

1. Connect the PC to the Multiviewer modules over IP or via RS-232.
2. Double-click the **`xxx.tacp`** file to start ACP Run-Time.

> **NOTE:** If you receive this **`xxx.tacp`** file from another PC, select **ACP** as the program to open it.



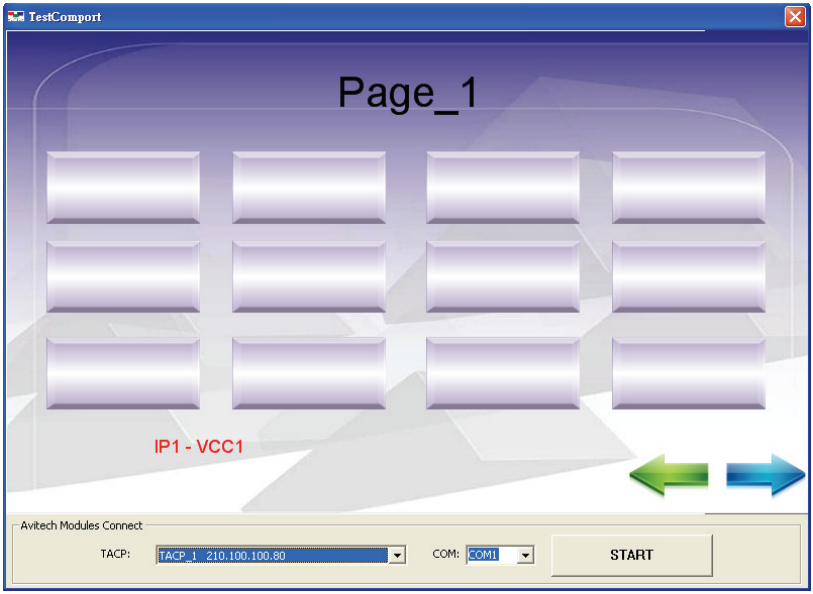
3. The IP disconnection indicator will initially show on the panel indicating no connection.



4. The panel will be ready to use when the IP disconnection indicator disappears from the screen.

5. When you see the following error, go back and run **`ACP-Vxxx.exe`** to confirm if the IP address of the TACP is the same as the local IP address of your PC.

6. If the ACP Run-Time detects more than one IP address from the PC that match the IP addresses found on the **`.tacp`** file, the following window will pop-up and prompt you to select one TACP.



7. On the **Avitech Modules Connect** portion, select one **TACP** and click **START**.
8. When there is COM port communication, the **Avitech Modules Connect** portion will also show up and prompt for **COM** port # selection.
9. Every 2 minutes, ACP Run-Time will probe the Ethernet connection to confirm if the connections are still active.

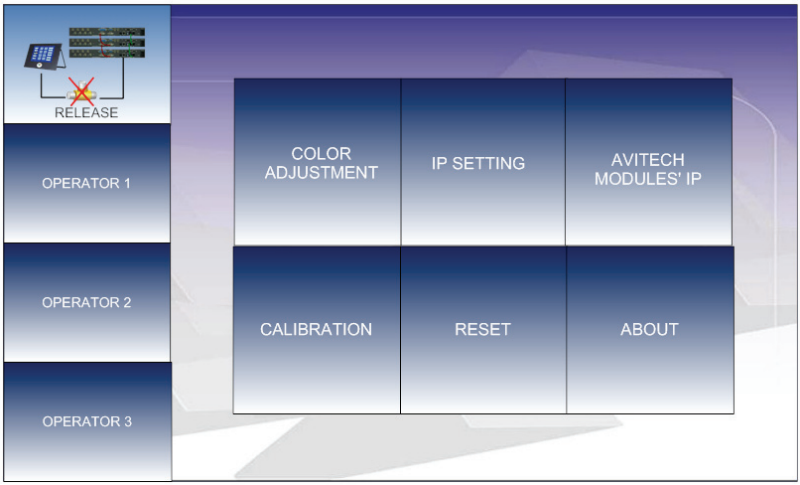
4 TACP Modes

This chapter familiarizes you with the Avitech TACP modes:

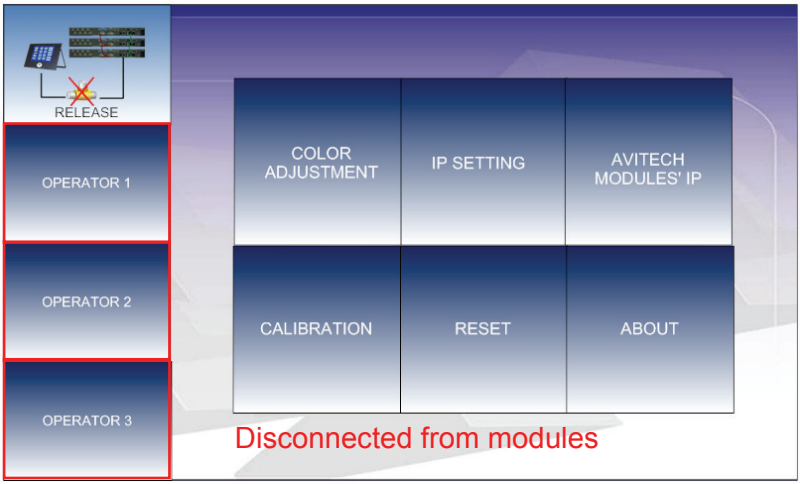
- Menu mode
- Download mode
- Operation mode

4.1 Menu Mode

The basic setup page in menu mode is shown next.



The basic setup page in menu mode that is currently not connected is shown next. By clicking any **OPERATOR** button, the TACP will start the attempt to connect to the TACP.



Release

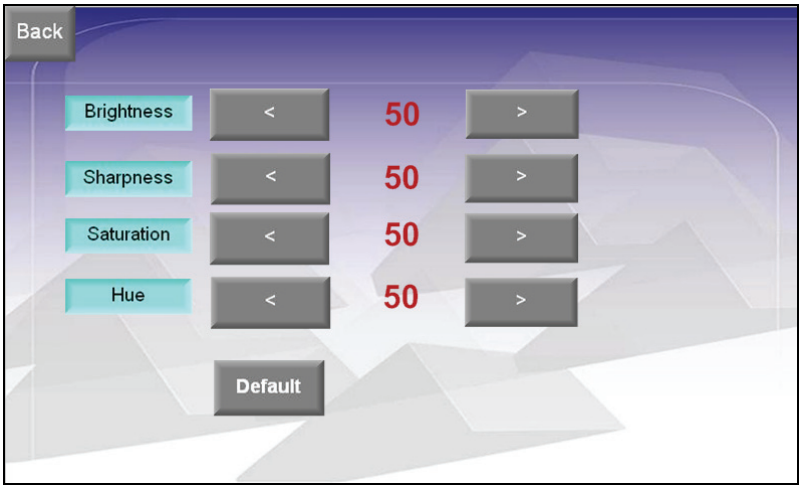
Before pressing the power switch button on the rear of the TACP to turn off power, tap the **RELEASE** button to release the IP connection between the TACP and the modules in order to properly turn off the TACP.

OPERATOR 1 / 2 / 3

When updating the configurations to the TACP, you can assign the configuration to be under one of the operator. Selecting any one of the operator will bring up the associated button page.

COLOR ADJUSTMENT

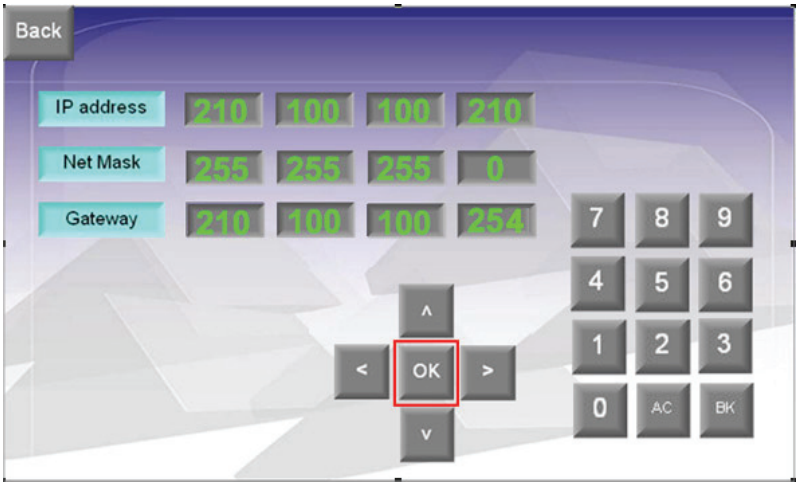
The TACP allows you to manually adjust the LCD luminance and chromaticity (e.g., **Brightness**, **Sharpness**, **Saturation**, and **Hue**). To change the value of each item, just click the left / right arrow keys to adjust.



The range of adjustment is from **0** to **100**. Default value is **50**.

IP SETTING

This page displays the current IP address of the local TACP. To change the value of the IP address, use up / down / left / right arrow keys to select the column first, then use the on-screen keypad to key in the new IP address. Then click **OK** when finished.



AVITECH MODULES' IP

The Avitech modules' IP address page is comprised of the following:

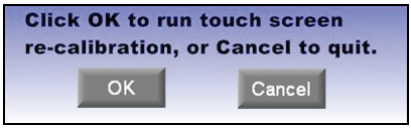
- **IP 1** ~ **IP 7**: shows the IP address of the Avitech Multiviewer modules.
- **Baud Rate**: shows the RS-232 baud rate of the Multiviewer modules.
- Every six seconds, the TACP will automatically detect the IP address signal. If the connection is broken, the IP address text will turn red.

> **NOTE:** The IP address table was created using the ACP. This page is for your reference only. Use the ACP to make any modifications.

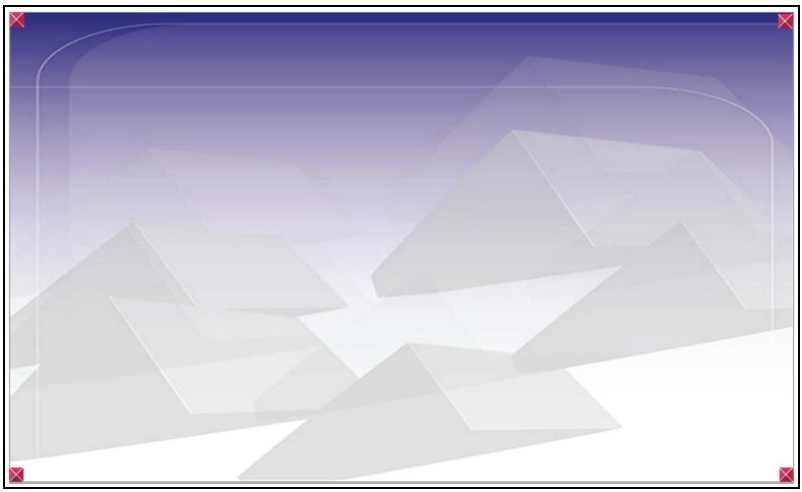
CALIBRATION

When there is noticeable discrepancy in the operation of the touch screen function (wrong location on intended operation when using the TACP in room, too high, or too low temperature environments), perform the following steps to calibrate the touch screen:

1. Tap the **CALIBRATION** button and the next screen appears.



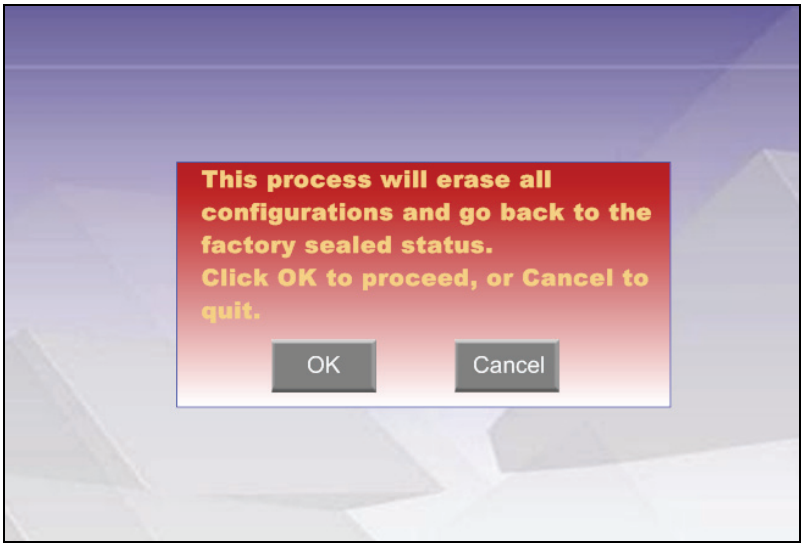
2. Tap **OK** and the following screen appears.



3. Tap the four red dots appearing on the four corners until each red dot turns green . Afterwards, the menu mode's basic setup page would appear.

RESET

When you want to erase the configurations on the TACP completely to return the TACP back to the factory default state, tap **RESET** and the following screen appears.

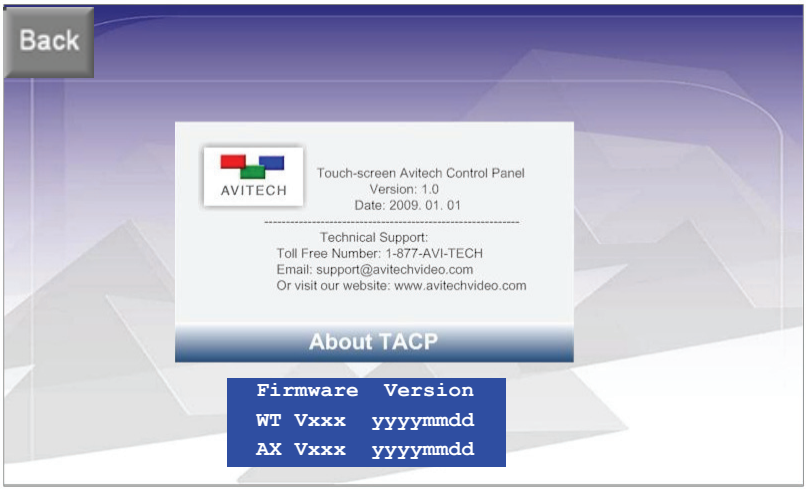

This process will erase all configurations and go back to the factory sealed status.
Click OK to proceed, or Cancel to quit.
OK
Cancel

Tap **OK** and upon resetting the TACP, you will be prompted to run calibration prior to entering the menu mode's basic setup page.

NOTE: After running the **RESET** process, all the configuration files will be erased.

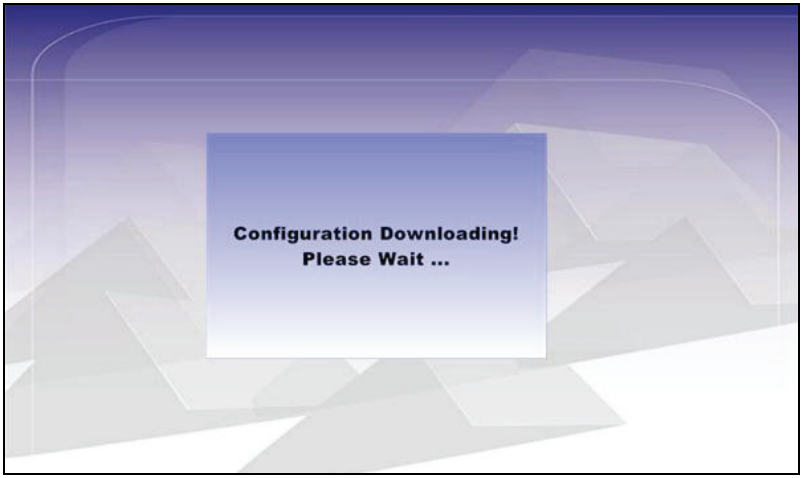
ABOUT

This page displays the TACP's system-related information such as version, firmware version, and technical support.



4.2 Download Mode

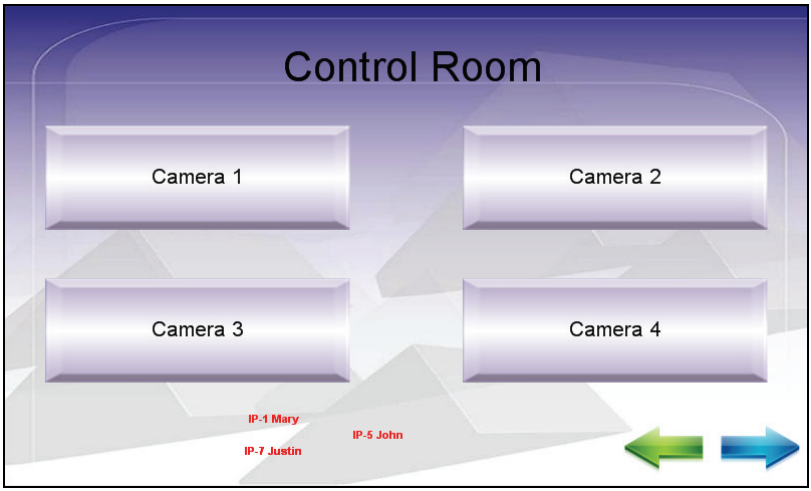
During the download process, the TACP's screen will freeze.



Upon finishing the download process, the TACP will revert back to an active state and display the last page prior to downloading.

4.3 Operation Mode

A sample configuration layout page as transferred from the ACP is shown next. Modules that were configured but currently not connected are shown in red on the lower portion of the screen (e.g., **IP-1 Mary**, **IP-5 John**, **IP-7 Justin**).



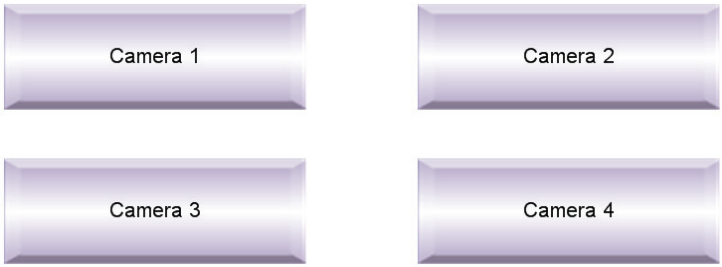
To return to menu mode, press the lower left corner for three seconds to return from operation mode back to menu mode.

Title Box Control Room

Contains the name of the page or configuration and can be defined.

ASCII Z Command Buttons

The buttons contain the ASCII code to communicate with the Avitech Multiviewer modules. The size, location, font style, and contents can be defined.



Back / Next Buttons

Allows you to return to the previous page or go to the next page.

A ASCII Z Command

The TACP uses the ASCII Z command to control the Multiviewer modules connected to it. This chapter familiarizes you with using the Avitech ASCII Z commands available to different types of Multiviewer modules.

A.1 ASCII Z Command Format

The ASCII Z command is comprised of the following parts:

Header	Group/Module/Window Assignment	Parameter 1	Parameter 2	. . .

The following list the rules to follow when entering the ASCII Z command:

- It is acceptable to enter commands in small or capital letters, and the five columns are separated by a space.
- **Header** = **z** + command character
- **Group/Module/Window Assignment** (**GGMMPP**) = is comprised of six Arabic numerals, this is used in designating the device's Group/Module/Window Assignment.

  Group (**GG**) = is comprised of the first two numbers (**01** ~ **99**), **00** is used to pertain to all groups.

  Module (**MM**) = is comprised of the middle two numbers (**01** ~ **15**), **00** is used to pertain to all modules. In order to quickly identify the module sequence, set the rotary **ID** in sequential order starting from **0**. **MM** is based on the rotary **ID** number plus (+) **1**.

  Window Assignment (**PP**) = is comprised of the last two numbers (**01** ~ **04**), **00** is used to pertain to all window assignments.

- **Parameter 1** of color assignment (**RRRGGGBBB**) = is comprised of nine Arabic numerals, this is used in designating the color.
- **Parameter 2** of on/off switch = "**1**" signifies ON while "**0**" signifies OFF.

A.2 ACC-8000 ASCII Z Command Format

ZM

Format: **ZM GGMMPP ##** (resolution number)

Function: to change the output resolution, the resolution number refers to the list of resolutions the ACC-8000 supports.

Description:

Resolution	Vertical Frequency	
	50 Hz	60 Hz
800 × 600	42	1
1024 × 768	31	2
1280 × 720	30	15
1280 × 768	32	22
1280 × 1024	29	9
1360 × 768	38	20
1400 × 1050	34	35
1440 × 900	46	45
1600 × 1200	39	10
1680 × 1050	41	40
1920 × 1080 (1080p)	28	26
1920 × 1200	37	36

Examples: **ZM 010000 10**
sets all the modules in group 1 to display at 1600×1200 resolution at 60 Hz vertical frequency and automatically arrange all windows to the optimum size and position.
ZM 000000 9
sets all the modules in all the groups to have a 1280×1024 resolution at 60 Hz vertical frequency.

ZP

Format: **ZP GGMMPP L**[oad] / **S**[ave] filename**.GP#**

Function: load a previously saved preset or save current layout to a preset.

Description: If the filename includes space(s), use double quotation marks to signify the complete filename.
If the filename is not specified when saving the file, system will backup the file into flash memory.

Examples: **ZP 000000 L 1.GP1**
sets all the modules in all the groups to load the previously saved **1.GP1** preset file.
ZP 020000 S 2.GP2
saves the current layout of all modules in group 2 to a preset file **2.GP2**.
ZP 000000 S
saves the file of all modules in all the groups into flash memory.

A.3 MCC-8001U ASCII Z Command Format

NOTE: Each video input will occupy a whole display, so each video will be treated as one group. For example, the MCC-8001U can accept two inputs at the same time, so MCC-8001U will be recognized as two groups, and for each group there will be only one module (MM) and one processing video (PP). If cascading three MCC-8001Us together, the corresponding format for output #1 from the third MCC-8001U (rotary ID #2) will be: 050101.

The following is a list of available ASCII Z commands for the MCC-8001U:

ZC

Format: **ZC GGMMPP B**[order]/**L**[abel] **RRRGGGBBB** (red ratio **000** ~ **255**, green ratio **000** ~ **255**, blue ratio **000** ~ **255**) (**N**o**D**im**C**olor)

Function: to set the border of the window (with/without 3D effect) and the label's background color.

Description: **B**[order] to signify the border of the window.
L[abel] to signify the label's background color.
[**N**o**D**im**C**olor] to signify the border's 3D effect. You can add [**N**o**D**im**C**olor] to remove the border's 3D effect. Just enter **NDC** to signify **N**o**D**im**C**olor.

Examples:
ZC 010101 B 000255000
sets the border color of group 1 module 1 window 1 as dim green with 3D effect.
ZC 010101 B 000255000 ndc
sets the border color of group 1 module 1 window 1 as pure green but without 3D effect.
ZC 200101 L 255000000
sets the label background color of group 20 module 1 window 1 as dim RED with 3D effect
ZC 020202 B 255000000 ndc
sets the border color of group 2 module 2 window 2 as red but without 3D effect.
ZC 030303 L 000000255
sets the label background color of group 3 module 3 window 3 as blue with 3D effect.

ZL

Format: **ZL GGMMPP 00~255** (transparency) **000000000** (RRRGGGBBB signifies the text color) **000000000** (RRRGGGBBB signifies the label color) "**TEXT**" (label text string 50 ASCII characters maximum)

Function: to set the label's transparency, text, and text color.

Examples: **ZL GGMMPP 0 255000000 000000255 “ CNN News Station ”**
sets GGMMPP to no transparency, text color red, label color blue, with text “ CNN News Station ”.

> **NOTE:** All windows will share the same label transparency setting. That is, upon changing one window's label transparency, all other window's label transparency will also be changed simultaneously.

ZM

Format: **ZM GGMMPP ##** (resolution number)

Function: to change the output resolution, the resolution number refers to the list of resolutions the MCC-8004 supports.

Description:

Resolution	Vertical Frequency	
	50 Hz	60 Hz
800 × 600	42	1
1024 × 768	31	2
1280 × 720	30	15
1280 × 768	32	22
1280 × 1024	29	9
1360 × 768	38	20
1400 × 1050	34	35
1440 × 900	46	45
1600 × 1200	39	10
1680 × 1050	41	40
1920 × 1080 (1080p)	28	26
1920 × 1200	37	36

Examples: **ZM 010000 10**
sets all the modules in group 1 to display at 1600×1200 resolution at 60 Hz vertical frequency and automatically arrange all windows to the optimum size and position.
ZM 000000 9
sets all the modules in all the groups to have a 1280×1024 resolution at 60 Hz vertical frequency.

ZN

Format: **ZN GGMMPP** option (**A**[larm]/**B**[order]/**E**[xtend label background]/**L**[abel]/**R**[atio aspect]/**S**[afe area]/**V**[ideo format display]) **1** (on) / **0** (off)

Function: to turn on/off various options.

Examples: **ZN GGMM00 L 0**
turns GGMM's label off.
ZN GGMMPP B 1
turns GGMMPP border on.
ZN GGMMPP S 0
turns GGMMPP's safe area off.

NOTE: Each ASCII command can only serve one purpose; multiple options on one command will not be recognizable.

ZP

Format: **ZP GGMMPP L**[oad] **"**filename**.GP#"**
load "filename" from RAM
ZP GGMMPP S[ave] **"**filename**.GP#"**
save "filename" to RAM
ZP GGMMPP L[oad]
load the configuration from EEPROM
ZP GGMMPP S[ave]
save the configuration to EEPROM
ZP GGMMPP Load Latest
load the latest configuration

Function: load a previously saved preset or save current layout to a preset.

Description: If the filename includes space(s), use double quotation marks to signify the complete filename.
If the filename is not specified when saving the file, system will backup the file into memory.

Examples: **ZP 000000 L 1.GP1**
sets all the modules in all the groups to load the previously saved **1.GP1** preset file.
ZP 020000 S 2.GP2
saves the current layout of all modules in group 2 to a preset file **2.GP2**.
ZP 000000 S
saves the file of all modules in all the groups into memory.

ZR

Format: **ZR GGMMPP SD** (width rate) **SD** (height rate) **HD** (width ratio) **HD** (height ratio)

Function: to lock and adjust the video ratio.

Examples: **ZR GGMM01 4 3 16 9**
sets GGMM01 SD video ratio as 4:3, HD video as 16:9.
ZR 000000 16 9 4 3
sets all windows' SD video ratio as 16:9, HD video as 4:3.
ZR GGMMPP 7 12 7 12
sets GGMMPP's SD and HD video ratio as 7:12.
ZR GGMMPP 0 0 0 0
disables the function by setting the width rate or height rate = 0.

ZT

Format: **ZT GGMMPP 1** [Tally 1] / **2** [Tally 2] **1** (on) / **0** (off) **#** (color index number)

Function: turn on or off the Tally for a window or all the windows in a group. The color index number is a list of colors that the Tally can be.

Description: Designate the action of the Tally. The following table shows the color index.

Index	Color
1	Null
2	Red
3	Green
4	Yellow
5	Blue
6	Pink
7	Light Blue
8	White

Examples: **ZT 000000 2 1 6**
activate Tally 2 for all the window(s) in all the module(s) for all the group(s) with pink color.
ZT 010203 1 0
close Tally 1 for group 1 module 2 window 3.

NOTE: Upon changing a Tally color, the same color is applied to the other Tally of the same module.

ZX

Format: **ZX GGMMPP "**label text**"** (include the quotation marks) **#** (font size (where **0** is the current font size, **1**~**4** are the available font size) + background extend (**0** is do not extend, **64** is extend) + outside video (**0** is inside video, **128** is outside video)

Function: to change the label text and font size as well as specify the inner/ outer video.

Examples: **ZX 000000 "Input 1"**
Input 1 will appear as the label for all the window(s) in all the module(s) of all the group(s).
ZX 000000 3
sets all window's label font size to 3.
ZX 000000 " Outside video " 128
Set all windows' label as " Outside video " with outside video.

A.4 MCC-8004 ASCII Z Command Format

The following is a list of available ASCII Z commands for the MCC-8004:

ZA

Format: **ZA GGMMPP** [NByN(**2**,**3**,……)] [Nth(**1**,**2**,……)]

Function: to set the automatic arrangement of windows.

Examples: **ZA 010900 2 1**
Set group 1 module 9 to a 2×2 map position 1,2,3,4 (quad).
ZA 010000 2 1
Set group 1's all modules to quad.
ZA 010202 3 2
Place window 010202 to a 3×3 map position 2.
ZA 010200 6 13
Place group 1 module 2 to a 6×6 map position 13,14,15,16.
ZA 000000
Automatically arrange all groups' windows to the optimum size and position.

ZB

Format: **ZB GGMMPP B**[order]/**L**[abel] **1** (on) / **0** (off)

Function: to turn on/off blinking of border or label.

Examples: **ZB GGMMPP L 0**
GGMMPP turn blinking label off.
ZB GGMMPP B 1
GGMMPP turn blinking border on.

ZC

Format: **ZC GGMMPP B**[order]/**L**[abel] **RRRGGGBBB** (red ratio **000** ~ **255**, green ratio **000** ~ **255**, blue ratio **000** ~ **255**) (**N**o**D**im**C**olor)

Function: to set the border of the window (with/without 3D effect) and the label's background color.

Description: **B**[order] to signify the border of the window.
L[abel] to signify the label's background color.
[**N**o**D**im**C**olor] to signify the border's 3D effect. You can add [**N**o**D**im**C**olor] to remove the border's 3D effect. Just enter **NDC** to signify **N**o**D**im**C**olor.

Examples: **ZC 010101 B 000255000**
sets the border color of group 1 module 1 window 1 as green with 3D effect.
ZC 020202 B 255000000 ndc
sets the border color of group 2 module 2 window 2 as red but without 3D effect.
ZC 030303 L 000000255
sets the border color of group 3 module 3 window 3 as blue with 3D effect.

ZE

Format: **ZE GGMM 1** (on) / **0** (off)

Function: to turn on/off echo, command response time would be much faster when echo is turned off.

Examples: **ZE GGMM 0**
Turn echo off for module GGMM RS-232.

ZF

Format: **ZF GGMMPP 1** (on) / **0** (off)

Function: to turn on/off the video window's full screen mode.

Examples: **ZF 010104 1**
sets group 1 module 1 window 4 to full screen mode display.
ZF 010104 0
disables full screen mode for group 1 module 1 window 4 and reverts it back to its former display size.

ZI

Format: **ZI GGMMPP** (if **PP** is **99** = clock) channel

Function: to set the input channel.

Description: For video window the channel values are **1** ~ **4**.
For clock the channel values are **1** = internal, **2** = DVI, **3** = VITC-NTSC, **4** = LTC, **5** = VITC-PAL, **6** = NTP (Network Time Protocol).

Examples: **ZI GGMM00 1**
sets GGMM to have all window source from internal channel 1.
ZI GGMM99 2
sets GGMM clock to synchronize with DVI.

To allow the clock input source to trigger NTP in order to synchronize the time instantly:
ZI GGMM99 1/2/.....
sets GGMM clock to sync to any other source except NTP.
ZI GGMM99 6
sets GGMM clock to sync to NTP.

ZK

Format: **ZK GGMM P**[reset] **S**[et]/**L**[oad]/**1**~**5**[ID of analog clock] Preset ID (**1**~**8**) **HH MM SS**

Function: to set the time and method of counting / NTP calibration time.

Examples: **ZK GGMM P S 1 11 22 33**
sets GGMM's preset time ID1 = 11:22:33.
ZK GGMM P L 1
sets GGMM's time to be the same as preset time of ID1.
ZK GGMM P 2
use analog clock shape #2.

Format for NTP calibration time: **ZK GGMM C**[alibrate] **HH MM**
ZK GGMM C 2 30
execute NTP calibration every 2.5 hours.
This setting will trigger NTP calibration instantly.

Format for control: **ZK GGMM** [**HH MM SS**] **0** (count down) / **1** (count up) / **2** (pause) / **3** (do not pause) / **4** (invert pause status) [counting method]
ZK GGMM 11 22 33
sets GGMM time to 11:22:33.
ZK GGMM 11 22 33 0
sets GGMM time to 11:22:33 and counting down.
ZK GGMM 1
sets GGMM clock to start counting upwards.

ZL

Format: **ZL GGMMPP** (clock) **00**~**255** (transparency) **000000000** (RRRGGGBBB set text color) **000000000** (RRRGGGBBB set label color) "**TEXT**" (label text string 50 ASCII characters maximum)

Function: to set the label's transparency, text, and text color.

Examples: **ZL GGMMPP 0 255000000 000000255 " CNN News Station "**
sets GGMMPP to no transparency, text color red, label color blue, with text " CNN News Station ".

NOTE: All windows will share the same label transparency setting. That is, upon changing one window's label transparency, all other window's label transparency will also be changed simultaneously.

ZM

Format: **ZM GGMMPP ##** (resolution number) [**N**o **A**utomatic arrangement]

Function: to change the output resolution, the resolution number refers to the list of resolutions the MCC-8004 supports.

Description:

Resolution	Vertical Frequency	
	50 Hz	60 Hz
800 × 600	42	1
1024 × 768	31	2
1280 × 720	30	15
1280 × 768	32	22
1280 × 1024	29	9
1280 × 768 SONY LMD230	N/A	23
1280 × 768 SONY LMD172	N/A	43
1280 × 768 SONY LMD322	N/A	44
1360 × 768	38	20
1400 × 1050	34	35
1400 × 1050 JVC	33	27
1440 × 900	46	45
1600 × 1200	39	10
1680 × 1050	41	40
1920 × 1080 (1080p)	28	26
1920 × 1200	37	36
1280 × 800 Apple monitor	N/A	56

252: VESA timing
253: color graphic card timing
254: frame lock timing
255: normal timing

Examples: **ZM 010000 10**
sets all the modules in group 1 to display at 1600×1200 resolution at 60 Hz vertical frequency and automatically arrange all windows to the optimum size and position.
ZM 000000 9 NA
sets all the modules in all the groups to have a 1280×1024 resolution at 60 Hz vertical frequency with no automatic arrangement.

ZN

Format: For turning on/off various options: **ZN GGMMPP** option (**A**[larm]/ **B**[order]/**C**[lock control]/**D**[isplay closed caption]/**E**[xtend label background]/**F**[PGA selection] **0** (digital clock) / **1** (analog clock) /**L**[abel]/**M**[eter]/**N**[eedle of clock]/**R**[atio aspect]/**S**[afe area]/ **V**[ideo format display]/**W**[indow]) **1** (on) / **0** (off).

Function: to turn on/off various options.

Examples: **ZN GGMM99 W 0**
turns GGMM clock off.
ZN GGMMPP B 1
turns GGMMPP border on.
ZN GGMMPP B 1
turns GGMMPP border on.
ZN GGMMPP F 0
selects mainboard FPGA 0.

ZO

Format: For initializing the audio source: **ZO GGMMPP I**[nitialize] **1**~**4** (Lgroup) **AES** (Rgroup) **60** (frequency is 60 Hz or else it is 59.94 Hz) **1** (PPM) / **2** (VU ballistics).
For setting the audio output: **ZO GGMMPP 1** (on) / **0** (off) [channel] **1** (stereo) / **2** (mono left) / **3** (mono right sound).

Function: to initialize the audio source as well as set the audio output.

Examples: **ZO GGMMPP I 1 AES 60 1**
sets GGMMPP Lgroup = 1 Rgroup = AES 60 Hz PPM.
ZO 000000 0
turns the audio off.
ZO 020100 1
turns group 2 module 1 audio on.
ZO 000203 1 4
turns the audio on for all groups in module 2 window 3 to channel 4.
ZO 020201 1 2 3
sets group 2 module 2 window 1 channel 2 to output audio on mono right.

ZP

Format: **ZP GGMMPP L**[oad] / **S**[ave] filename**.GP#**

ZP GGMM (This command only works in Hyper Terminal, ACP does not support this format)

Function: load a previously saved preset or save current layout to a preset.

Description: If the filename includes space(s), use double quotation marks to signify the complete filename.
If the filename is not specified when saving the file, system will backup the file into flash memory.

Examples: **ZP 000000 L "stage1"**
sets all the modules in all the groups to load the previously saved "stage1" preset file
ZP 020000 S "file2.GP2"
saves the current layout of all modules in group 2 to a preset file "file2.GP2"
ZP 000000 S
saves the file of all modules in all the groups into flash memory.
ZP 000000 L Latest
load the latest saved file from flash memory.
ZP 0000
list master presets (ACP does not support this command).
ZP 0203
list Group 2 third module's presets (ACP does not support this command).

ZR

Format: **ZR GGMMPP SD** (width rate) **SD** (height rate) **HD** (width ratio) **HD** (height ratio)

Function: to lock and adjust the video ratio.

Examples: **ZR GGMM01 4 3 16 9**
sets GGMM01 SD video ratio as 4:3, HD video as 16:9.
ZR 000000 16 9 4 3
sets all windows' SD video ratio as 16:9, HD video as 4:3.
ZR GGMMPP 7 12 7 12
sets GGMMPP's SD and HD video ratio as 7:12.
ZR GGMMPP 0 0 0 0
disables the function by setting the width rate or height rate = 0.

ZT

Format: **ZT GGMMPP 1** [Tally 1] / **2** [Tally 2] **1** (on) / **0** (off) **#** (color index number)

Function: turn on or off the Tally for a window or all the windows in a group. The color index number is a list of colors that the Tally can be.

Description: Designate the action of the Tally. The following table shows the color index.

Index	Color
1	Null
2	Red
3	Green
4	Yellow
5	Blue
6	Pink
7	Light Blue
8	White

Examples: **ZT 000000 2 1 6**
activate Tally 2 for all the window(s) in all the module(s) for all the group(s) with pink color.
ZT 010203 1 0
close Tally 1 for group 1 module 2 window 3.

NOTE: Upon changing a Tally color, the same color is applied to the other Tally of the same module.

ZV

Format: **ZV GGMMPP** volume (default = **32**, range **0**~**127**)

Function: to set the analog audio's volume level.

Examples: **ZV GGMM01 0**
turns GGMM's window 1 analog audio to mute.

ZW

Format: **ZW GGMMPP X** position **Y** position **W**(idth) **H**(eight)

Function: to set the window's position and size, or appear as the topmost window of a module.

Examples: **ZW GGMM01**
sets GGMM's window 1 as the top window.
ZW GGMMPP 100 200 300 400
sets GGMMPP at (100,200) (400,600).

ZX

Format: **ZX GGMMPP** "label text" (include the quotation marks) **#** (font size (where **0** is the current font size, **1**~**4** are the available font size) + background extend (**0** is do not extend, **64** is extend) + outside video (**0** is inside video, **128** is outside video)

Function: to change the label text and font size as well as specify the inner/ outer video.

Examples: **ZX 000000 "Input 1"**
Input 1 will appear as the label for all the window(s) in all the module(s) of all the group(s).
ZX 000000 3
sets all window's label font size to 3.
ZX 000000 " Outside video " 128
Set all windows' label as " Outside video " with outside video.

A.5 Rainier 2x Series ASCII Z Command Format

The following is a list of available ASCII Z commands for the Rainier 2x series:

ZA

Format: **ZA GGMMPP** [NByN(**2**,**3**,……)] [Nth(**1**,**2**,……)]

Function: to set the automatic arrangement of windows.

Examples: **ZA 010900 2 1**
Set group 1 module 9 to a 2×2 map position 1,2,3,4 (quad).
ZA 010000 2 1
Set group 1 all modules to quad.
ZA 010202 3 2
Place group 1 module 2 window 2 to the 3×3 map position 2.
ZA 010200 6 13
Place group 1 module 2 to the 6×6 map position 13,14,15,16.
ZA 000000
Automatically arrange all groups' windows to the optimum size and position.

ZC

Format: **ZC GGMMPP B**[order]/**L**[abel] **RRRGGGBBB** (red ratio **000** ~ **255**, green ratio **000** ~ **255**, blue ratio **000** ~ **255**) (**N**o**D**im**C**olor)

Function: to set the border of the window (with/without 3D effect) and the label's background color.

Description: **B**[order] to signify the border of the window.
L[abel] to signify the label's background color.
[**N**o**D**im**C**olor] to signify the border's 3D effect. You can add [**N**o**D**im**C**olor] to remove the border's 3D effect. Just enter **NDC** to signify **N**o**D**im**C**olor.

Examples: **ZC 010101 B 000255000**
sets the border color of group 1 module 1 window 1 as green with 3D effect.
ZC 020202 B 255000000 ndc
sets the border color of group 2 module 2 window 2 as red but without 3D effect.
ZC 030303 L 000000255
sets the border color of group 3 module 3 window 3 as blue with 3D effect.

ZF

Format: **ZF GGMMPP 1** (on) / **0** (off)

Function: to turn on/off the video window's full screen mode.

Examples: **ZF 010104 1**
sets group 1 module 1 window 4 to full screen mode display.
ZF 010104 0
disables full screen mode for group 1 module 1 window 4 and reverts it back to its former display size.

ZJ

Format: **ZJ GGMMPP I**[mage] / **G**[ain]

Function: to automatically adjust the analog VGA signal entering the **DVI-I Input** port of the Rainier 2x series.

Description: **I**[mage] will automatically adjust the image's position and size.
G[ain] will automatically adjust the image gain.

Examples: **ZJ 000000 I**
automatically adjust the image's position and size on all the module(s) for all the group(s).
ZJ 020000 G
automatically adjust the image gain on all the module(s) in group 2.

ZL

Format: **ZL GGMMPP 000000000** (text color RRRGGGBBB) **000000000** (label color RRRGGGBBB) "**TEXT**" (label text string 32 ASCII characters maximum but it will depend on the font size. For example, upon entering label text "0123456789" at font size 3, Rainier 2x series will just show "012345678").

Function: to set the label's text and text color.

Examples: **ZL GGMMPP 255000000 000000255 " CNN News Station "**
sets GGMMPP text color red, label color blue, with text " CNN News Station ".

ZM

Format: **ZM GGMMPP ##** (resolution number)

Function: to change the output resolution, the resolution number refers to the list of resolutions the Rainier 2x series supports.

Description:

Resolution	Vertical Frequency		
	50 Hz	60 Hz	75 Hz
800 × 600	42	1	47
1024 × 768	31	2	11
1280 × 720	30	15	48
1280 × 768	32	22	49
1280 × 1024	29	9	12
1360 × 768	38	20	21
1400 × 1050	34	35	50
1440 × 900	46	45	51
1600 × 1200	39	10	52
1680 × 1050	41	40	53
1920 × 1080	28	26	N/A
1920 × 1200	37	36	N/A

Examples: **ZM 010000 10**
sets all the modules in group 1 to display at 1600×1200 resolution at 60 Hz vertical frequency.
ZM 000000 9 NA
sets all the modules in all the groups would have a 1280×1024 resolution at 60 Hz vertical frequency with no automatic arrangement.

ZN

Format: **ZN GGMMPP O**(SD) **1** (on) / **0** (off)

Function: to turn on/off the OSD (on screen display).

Examples: **ZN 000000 O 0**
turns off the OSD on all modules of all groups.
ZN 010100 O 1
turns on the OSD on module 1 of group 1.

ZP

Format: **ZP GGMMPP L**[oad] / **S**[ave] filename**.GP#**
ZP GGMM (for listing presets)

> **NOTE:**
> - When listing presets GG = 00 or MM = 00 represents the master module.
> - This command only works in Hyper Terminal, ACP does not support this command.

Function: load a previously saved preset or save current layout to a preset, as well as list presets.

Description: If the filename includes space(s), use double quotation marks to signify the complete filename.
If the filename is not specified when saving the file, system will backup the file into flash memory.

Examples: **ZP 000000 L 1.GP1**
sets all the modules in all the groups to load the previously saved **1.GP1** preset file.
ZP 020000 S 2.GP2
saves the current layout of all modules in group 2 to a preset file **2.GP2**.
ZP 000000 S
saves the file of all modules in all the groups into flash memory.
ZP 0000
lists the master presets (this command only works in Hyper Terminal, ACP does not support this command).
ZP 0203
lists group 2 module 3's presets (this command only works in Hyper Terminal, ACP does not support this command).

ZT

Format: **ZT GGMMPP 1** [Tally 1] / **2** [Tally 2] **1** (on) / **0** (off) **#** (color index number)

Function: turn on or off the Tally for a window or all the windows in a group. The color index number is a list of colors that the Tally can be.

Description: Designate the action of the Tally. The following table shows the color index.

Index	Color
1	Null
2	Red
3	Green
4	Yellow
5	Blue
6	Pink
7	Light Blue
8	White

Examples: **ZT 000000 2 1 6**
activate Tally 2 for all the window(s) in all the module(s) for all the group(s) with pink color.
ZT 010203 1 0
close Tally 1 for group 1 module 2 window 3.

NOTE: Upon changing a Tally color, the same color is applied to the other Tally of the same module.

ZW

Format: **ZW GGMMPP X** position **Y** position **W**(idth) **H**(eight)

Function: to set the window's position and size, or appear as the topmost window of a module.

Examples: **ZW GGMM01**
sets GGMM's window 1 as the top window.
ZW GGMMPP 100 200 300 400
sets GGMMPP at (100,200) (400,600).
ZW 010101 0 0 0 0
turns group 1 module 1 window 1 off by setting the width or height to be 0.

ZX

Format: **ZX GGMMPP "**label text**"** (include the quotation marks) **#** (font size 1 ~ 4)

Function: to change the label text and font size.

Description: Include the quotation marks when entering the label text.
The label will appear center-aligned on the window, maximum of 32 characters for each label.

Examples: **ZX 000000 "Input 1"**
Input 1 will appear as the label for all the window(s) in all the module(s) of all the group(s).
ZX 000000 3
sets all window's label font size to 3.

A.6 Rainier 4x / 4x1V Series ASCII Z Command Format

The following is a list of available ASCII Z commands for the Rainier 4x / 4x1V series:

ZC

Format: **ZC GGMMPP B**[order]/**L**[abel] **RRRGGGBBB** (red ratio **000** ~ **255**, green ratio **000** ~ **255**, blue ratio **000** ~ **255**) (**N**o**D**im**C**olor)

Function: to set the border of the window (with/without 3D effect) and the label's background color.

Description: **B**[order] to signify the border of the window.
L[abel] to signify the label's background color.
[**N**o**D**im**C**olor] to signify the border's 3D effect. You can add [**N**o**D**im**C**olor] to remove the border's 3D effect. Just enter **NDC** to signify **N**o**D**im**C**olor.

Examples: **ZC 010101 B 000255000**
sets the border color of group 1 module 1 window 1 as green with 3D effect.
ZC 020202 B 255000000 ndc
sets the border color of group 2 module 2 window 2 as red but without 3D effect.
ZC 030303 L 000000255
sets the border color of group 3 module 3 window 3 as blue with 3D effect.

ZF

Format: **ZF GGMMPP 1** (on) / **0** (off)

Function: to turn on/off the video window's full screen mode.

Examples: **ZF 010104 1**
sets group 1 module 1 window 4 to full screen mode display.
ZF 010104 0
disables full screen mode for group 1 module 1 window 4 and reverts it back to its former display size.
ZF 010105 1
sets group 1 module 1 cascade in source (**DVI-I Input** port) to full screen mode display.

ZJ (for Rainier 4a1V/4d1V/4U1V only)

Format: **ZJ GGMMPP I**[mage] / **G**[ain]

Function: to automatically adjust the analog VGA signal entering the **DVI-I Input** port of the Rainier 4x / 4x1V series.

Description: **I**[mage] will automatically adjust the image's position and size.
G[ain] will automatically adjust the image gain.

Examples: **ZJ 000000 I**
automatically adjust the image's position and size on all the module(s) for all the group(s).
ZJ 020000 G
automatically adjust the image gain on all module(s) in group 2.

ZM

Format: **ZM GGMMPP ##** (resolution number)

Function: to change the output resolution, the resolution number refers to the list of resolutions the Rainier 4x / 4x1V series supports.

Description:

Resolution	Vertical Frequency		
	50 Hz	60 Hz	75 Hz
800 × 600	42	1	47
1024 × 768	31	2	11
1280 × 720	30	15	48
1280 × 768	32	22	49
1280 × 1024	29	9	12
1360 × 768	38	20	21
1400 × 1050	34	35	50
1440 × 900	46	45	51
1600 × 1200	* 39	* 10	* 52
1680 × 1050	* 41	* 40	* 53
1920 × 1080 (1080p)	* 28	* 26	N/A
1920 × 1200	* 37	* 36	N/A

* Only Rainier 4A1V and 4D1V support this mode.

NOTE: Maximum resolution for Rainier4a/4d is 1440×900.

Examples: **ZM 010000 10**
sets all the modules in group 1 to display at 1600×1200 resolution at 60 Hz vertical frequency.
ZM 000000 9
sets all the modules in all the groups would have a 1280×1024 resolution at 60 Hz vertical frequency.

ZP

Format: **ZP GGMMPP L**[oad] / **S**[ave] filename**.GP#**

Function: load a previously saved preset or save current layout to a preset.

Description: If the filename includes space(s), use double quotation marks to signify the complete filename.
If the filename is not specified when saving the file, system will backup the file into flash memory.

Examples: **ZP 000000 L 1.GP1**
sets all the modules in all the groups to load the previously saved **1.GP1** preset file.
ZP 020000 S 2.GP2
saves the current layout of all modules in group 2 to a preset file **2.GP2**.
ZP 000000 S
saves the file of all modules in all the groups into flash memory.

ZT

Format: **ZT GGMMPP 1** [Tally 1] / **2** [Tally 2] **1** (on) / **0** (off) **#** (color index number)

Function: turn on or off the Tally for a window or all the windows in a group. The color index number is a list of colors that the Tally can be.

Description: Designate the action of the Tally. The following table shows the color index.

Index	Color
1	Null

Index	Color
2	Red
3	Green
4	Yellow
5	Blue
6	Pink
7	Light Blue
8	White

Examples: **ZT 000000 2 1 6**
activate Tally 2 for all the window(s) in all the module(s) for all the group(s) with pink color.
ZT 010203 1 0
close Tally 1 for group 1 module 2 window 3.

NOTE: Upon changing a Tally color, the same color is applied to the other Tally of the same module.

ZX

Format: **ZX GGMMPP "**label text**"** (include the quotation marks) **#** (font size 1 ~ 4)

Function: to change the label text and font size.

Description: Include the quotation marks when entering the label text.
The label will appear center-aligned on the window, maximum of 32 characters for each label but will also depend on the font size. For example, upon entering label text "0123456789" at font size 3, Rainier 4x / 4x1V series will just display "012345678".

Examples: **ZX 000000 "Input 1"**
Input 1 will appear as the label for all the window(s) in all the module(s) of all the group(s).
ZX 000000 3
sets all window's label font size to 3.

A.7 Rainier 4U1V ASCII Z Command Format

The following is a list of available ASCII Z commands for the Rainier 4U1V:

ZC

Format: **ZC GGMMPP B**[order]/**L**[abel] **RRRGGGBBB** (red ratio **000** ~ **255**, green ratio **000** ~ **255**, blue ratio **000** ~ **255**) (**N**o**D**im**C**olor)

Function: to set the border of the window (with/without 3D effect) and the label's background color.

Description: **B**[order] to signify the border of the window.
L[abel] to signify the label's background color.
[**N**o**D**im**C**olor] to signify the border's 3D effect. You can add [**N**o**D**im**C**olor] to remove the border's 3D effect. Just enter **NDC** to signify **N**o**D**im**C**olor.

Examples: **ZC 010101 B 000255000**
sets the border color of group 1 module 1 window 1 as green with 3D effect.
ZC 020202 B 255000000 ndc
sets the border color of group 2 module 2 window 2 as red but without 3D effect.
ZC 030303 L 000000255
sets the label color of group 3 module 3 window 3 as blue with 3D effect.

ZF

Format: **ZF GGMMPP 1** (on) / **0** (off)

Function: to turn on/off the video window's full screen mode.

Examples: **ZF 010104 1**
sets group 1 module 1 window 4 to full screen mode display.
ZF 010104 0
disables full screen mode for group 1 module 1 window 4 and reverts it back to its former display size.
ZF 010105 1
sets group 1 module 1 cascade in source (**DVI-I Input** port) to full screen mode display.

ZJ (for Rainier 4a1V/4d1V/4U1V only)

Format: **ZJ GGMMPP I**[mage] / **G**[ain]

Function: to automatically adjust the analog VGA signal entering the **DVI-I Input** port of the Rainier 4U1V.

Description: **I**[mage] will automatically adjust the image's position and size.
G[ain] will automatically adjust the image gain.

Examples: **ZJ 000000 I**
automatically adjust the image's position and size on all the module(s) for all the group(s).
ZJ 020000 G
automatically adjust the image gain on all the module(s) in group 2.

ZM

Format: **ZM GGMMPP ##** (resolution number)

Function: to change the output resolution, the resolution number refers to the list of resolutions the Rainier 4U1V supports.

Description:

Resolution	Vertical Frequency		
	50 Hz	60 Hz	75 Hz
800 × 600	42	1	47
1024 × 768	31	2	11

Resolution	Vertical Frequency		
	50 Hz	60 Hz	75 Hz
1280 × 720	30	15	48
1280 × 768	32	22	49
1280 × 1024	29	9	12
1360 × 768	38	20	21
1400 × 1050	34	35	50
1440 × 900	46	45	51
1600 × 1200	39	10	52
1680 × 1050	41	40	53
1920 × 1080 (1080p)	28	26	N/A
1920 × 1200	37	36	N/A

Examples: **ZM 010000 10**
sets all the modules in group 1 to display at 1600×1200 resolution at 60 Hz vertical frequency.
ZM 000000 9
sets all the modules in all the groups would have a 1280×1024 resolution at 60 Hz vertical frequency.

ZP

Format: **ZP GGMMPP L**[oad] / **S**[ave] filename**.GP#**

Function: load a previously saved preset or save current layout to a preset.

Description: If the filename includes space(s), use double quotation marks to signify the complete filename.
If the filename is not specified when saving the file, system will backup the file into flash memory.

Examples: **ZP 000000 L 1.GP1**
sets all the modules in all the groups to load the previously saved **1.GP1** preset file.
ZP 020000 S 2.GP2
saves the current layout of all modules in group 2 to a preset file **2.GP2**.
ZP 000000 S
saves the file of all modules in all the groups into flash memory.

ZT

Format: **ZT GGMMPP 1** [Tally 1] / **2** [Tally 2] **1** (on) / **0** (off) **#** (color index number)

Function: turn on or off the Tally for a window or all the windows in a group. The color index number is a list of colors that the Tally can be.

Description: Designate the action of the Tally. The following table shows the color index.

Index	Color
1	Null
2	Red
3	Green
4	Yellow
5	Blue
6	Pink
7	Light Blue
8	White

Examples: **ZT 000000 2 1 6**
activate Tally 2 for all the window(s) in all the module(s) for all the group(s) with pink color.
ZT 010203 1 0
close Tally 1 for group 1 module 2 window 3.

NOTE: Upon changing a Tally color, the same color is applied to the other Tally of the same module.

ZX

Format: **ZX GGMMPP "**label text**"** (include the quotation marks) **#** (font size 1 ~ 4)

Function: to change the label text and font size.

Description: Include the quotation marks when entering the label text.
The label will appear center-aligned on the window, maximum of 32 characters for each label.

Examples: **ZX 000000 "Input 1"**
Input 1 will appear as the label for all the window(s) in all the module(s) of all the group(s).
ZX 000000 3
sets all window's label font size to 3.

A.8 VCC-8000 ASCII Z Command Format

The following is a list of available ASCII Z commands for the VCC-8000:

ZA

Format: **ZA GGMMPP** [NByN(**2**,**3**,……)] [Nth(**1**,**2**,……)]

Function: to set the automatic arrangement of windows.

Examples: **ZA 010900 2 1**
Set group 1 module 9 to a 2×2 map position 1,2,3,4 (quad).
ZA 010000 2 1
Set group 1's all modules to quad.
ZA 010202 3 2
Place window 010202 to a 3×3 map position 2.
ZA 010200 6 13
Place group 1 module 2 to a 6×6 map position 13,14,15,16.
ZA 000000
Automatically arrange all groups' windows to the optimum size and position.

ZC

Format: **ZC GGMMPP B**[order]/**L**[abel] **RRRGGGBBB** (red ratio **000** ~ **255**, green ratio **000** ~ **255**, blue ratio **000** ~ **255**) (**N**o**D**im**C**olor)

Function: to set the border of the window (with/without 3D effect) and the label's background color.

Description: **B**[order] to signify the border of the window.
L[abel] to signify the label's background color.
[**N**o**D**im**C**olor] to signify the border's 3D effect. You can add [**N**o**D**im**C**olor] to remove the border's 3D effect. Just enter **NDC** to signify **N**o**D**im**C**olor.

Examples: **ZC 010101 B 000255000**
sets the border color of group 1 module 1 window 1 as green with 3D effect.
ZC 020202 B 255000000 ndc
sets the border color of group 2 module 2 window 2 as red but without 3D effect.
ZC 030303 L 000000255
sets the label color of group 3 module 3 window 3 as blue with 3D effect.

ZE

Format: **ZE GGMM 1** (on) / **0** (off)

Function: to turn on/off echo, command response time would be much faster when echo is turned off.

Examples: **ZE GGMM 0**
Turn echo off for GGMM's RS-232.

ZF

Format: **ZF GGMMPP 1** (on) / **0** (off)

Function: to turn on/off the video window's full screen mode.

Examples: **ZF 010104 1**
sets group 1 module 1 window 4 to full screen mode display.
ZF 010104 0
disables full screen mode for group 1 module 1 window 4 and reverts it back to its former display size.

ZI

Format: **ZI GGMMPP** (when **PP** is **99** = clock) clock channel

Function: to set the input channel.

Description: For clock the channel values are **1** = internal, **2** = DVI, **6** = NTP (Network Time Protocol).

Examples: **ZI GGMM99 2**
sets GGMM clock time to synchronize to DVI.

ZJ

Format: **ZJ GGMMPP I**[mage] / **G**[ain]

Function: to automatically adjust the analog VGA signal entering the **DVI-I Input** port.

Description: **I**[mage] will automatically adjust the image's position and size. **G**[ain] will automatically adjust the image gain.

Examples: **ZJ 000000 I**
automatically adjust the image's position and size on all the module(s) for all the group(s).
ZJ 020000 G
automatically adjust the image gain on all the module(s) in group 2.

ZK

Format: **ZK GGMM P**[reset] **S**[et]/**L**[oad]/**1**~**5** [ID of analog clock] Preset ID (**1**~**8**) **HH MM SS**

Function: to set the time and method of counting / NTP calibration time.

Examples: **ZK GGMM P S 1 11 22 33**
sets GGMM's preset time ID1 = 11:22:33.
ZK GGMM P L 1
sets GGMM's time to be the same as preset time of ID1.
ZK GGMM P 2
use analog clock shape #2.

Format for NTP calibration time: **ZK GGMM C**[alibrate] **HH MM**
ZK GGMM C 2 30
execute NTP calibration every 2.5 hours.
This setting will trigger NTP calibration instantly.

Format for control: **ZK GGMM** [**HH MM SS**] **0** (count down) / **1** (count up) / **2** (pause) / **3** (do not pause) / **4** (invert pause status) [counting method]
ZK GGMM 11 22 33
sets GGMM time to 11:22:33.
ZK GGMM 11 22 33 0
sets GGMM time to 11:22:33 and counting down.
ZK GGMM 1
sets GGMM clock to start counting upwards.

ZL

Format: **ZL GGMMPP 000000000** (text color RRRGGGBBB) **000000000** (label color RRRGGGBBB) "**TEXT**" (label text string 32 ASCII characters maximum but it will depend on the font size. For example, upon entering label text "0123456789" at font size 3, VCC-8000 will just show "012345678").

Function: to set the label's text and text color.

Examples: **ZL GGMMPP 255000000 000000255 " CNN News Station "**
sets GGMMPP text color red, label color blue, with text " CNN News Station ".

ZM

Format: **ZM GGMMPP ##** (resolution number)

Function: to change the output resolution, the resolution number refers to the list of resolutions the VCC-8000 supports.

Description:

Resolution	Vertical Frequency		
	50 Hz	60 Hz	75 Hz
800 × 600	42	1	47
1024 × 768	31	2	11
1280 × 720	30	15	48
1280 × 768	32	22	49
1280 × 1024	29	9	12
1360 × 768	38	20	21
1400 × 1050	34	35	50
1440 × 900	46	45	51
1600 × 1200	39	10	52
1680 × 1050	41	40	53
1920 × 1080 (1080p)	28	26	N/A
1920 × 1200	37	36	N/A

252: VESA timing
255: normal timing

Examples: **ZM 010000 10**
sets all the modules in group 1 to display at 1600×1200 resolution at 60 Hz vertical frequency.
ZM 000000 9 NA
sets all the modules in all the groups to have a 1280×1024 resolution at 60 Hz vertical frequency with no automatic arrangement.

ZN

Format: **ZN GGMMPP** (when **PP** is **99** = clock) option (**O**[SD]/**B**[order]/**I**[mage]/**G**[ain]/**L**[abel]/**W**[indow]) **1** (on) / **0** (off)

Function: to turn on/off various options.

Examples: **ZN 000000 O 0**
turns off the OSD (on screen display) of all modules of all groups.
ZN 010100 O 1
turns on the OSD of module 1 of group 1.
ZN 020202 B 0
turns off the border of window 2 of module 2 of group 2.
ZN 030303 L 1
turns on the label of window 3 of module 3 of group 3.
ZN 050505 I 1
turns on automatic image adjustment function of group 5 module 5 VGA window 5.
ZN 050505 G 0
turns off automatic gain function of group 5 module 5 VGA window 5.
ZN 020299 B 0
turns off the clock border of module 2 of group 2.

NOTE:
- Turning on automatic adjust and automatic gain only affects the VGA window.
- The image window will be positioned at (0,0) and be 1/16 of display size upon turning on a closed image window.

ZP

Format: **ZP GGMMPP L**[oad] / **S**[ave] filename**.GP#**
ZP GGMM (for listing presets)

NOTE:
- When listing presets GG = 00 or MM = 00 represents the master module.
- This command only works in Hyper Terminal, ACP does not support this command.

Function: load a previously saved preset or save current layout to a preset, as well as list presets.

Description: If the filename includes space(s), use double quotation marks to signify the complete filename.
If the filename is not specified when saving the file, system will backup the file into flash memory.

Examples: **ZP 000000 L 1.GP1**
sets all the modules in all the groups to load the previously saved **1.GP1** preset file.
ZP 020000 S 2.GP2
saves the current layout of all modules in group 2 to a preset file **2.GP2**.
ZP 000000 S
saves the file of all modules in all the groups into flash memory.
ZP 0000
lists the master presets (this command only works in Hyper Terminal, ACP does not support this command).
ZP 0203
lists group 2 of module 3's presets (this command only works in Hyper Terminal, ACP does not support this command).

ZT

Format: **ZT GGMMPP 1** [VCC-8000 only have Tally 1 available] **1** (on) / **0** (off) **#** (color index number)

Function: turn on or off the Tally for a window or all the windows in a group. The color index number is a list of colors that the Tally can be.

Description: Designate the action of the Tally. The following table shows the color index.

Index	Color
1	Null
2	Red
3	Green
4	Yellow
5	Blue
6	Pink

7	Light Blue
8	White

Examples: **ZT 000000 1 1 6**
activate Tally 1 for all the window(s) in all the module(s) for all the group(s) with pink color.
ZT 010203 1 0
close Tally 1 for group 1 module 2 window 3.

> **NOTE:** Upon changing a Tally color, the same color is applied to the other Tally of the same module.

ZW

Format: **ZW GGMMPP** (when **PP** is **99** = clock) **X** position **Y** position **W**(idth) **H**(eight)
ZW GGMMPP C[rop] **1** (on) / **0** (off) **X** (width) **Y** (height)

Function: to set the window's position and size, appear as the topmost window of a module, and crop.

When cropping, the width and height are calculated using the module output display size. For example, if the module output display timing is 1280×1024 at 60 Hz, and you just want to display the right bottom quarter of the input image:

Crop X = 1280 / 2 = 640 (crop width = 1280 / 2 = 640)

Crop Y = 1024 / 2 = 512 (crop height = 1024 / 2 = 512)

There is no need to take into consideration the input image size and position, or the size of the window. When cropping it is always assumed that the input image size is equal to the module's output display size.

Examples: **ZW GGMM01**
sets GGMM's window 1 as the top window.
ZW GGMMPP 100 200 300 400
sets GGMMPP at (100,200) (400,600).
ZW 010101 0 0 0 0
turns group 1 module 1 window 1 off by setting the width or height to be 0.
ZW 010102 C 1 100 100 320 240
crop group 1 module 1 window 2.
ZW 010104 C 0
disables crop on group 1 module 1 window 4.
ZW 010199 0 0 320 240
sets the clock window position at (0,0) with size 320×240.

ZX

Format: **ZX GGMMPP** (when **PP** is **99** = clock) **"**label text**"** (include the quotation marks) **#** (font size 1 ~ 4)

Function: to change the label text and font size.

Description: Include the quotation marks when entering the label text.
The label will appear center-aligned on the window, maximum of 32 characters for each label.

Examples: **ZX 000000 "Input 1"**
Input 1 will appear as the label for all the window(s) in all the module(s) of all the group(s).
ZX 000000 3
sets all window's label font size to 3.
ZX 010199 "CLOCK" 4
sets the clock's label text as "CLOCK" and having font size of 4.

B Firmware Upgrade

This chapter familiarizes you with updating the firmware of your Avitech TACP (two stages).

B.1 Requirements

To update the firmware of your TACP, prepare the following:

- Ethernet cable
- Power adapter
- PC that is running Windows XP, Windows Vista, Windows Server 2003, Windows Server 2008, or Windows 2000 operating system

  IMPORTANT (**for Windows 2000 user):** download the plug-in (**`gdiplus.dll`**) from the Microsoft® website at **`http://www.microsoft.com/downloads/details.aspx?FamilyID=6a63ab9c-df12-4d41-933c-be590feaa05a&displaylang=en`** and follow the on screen instructions to install it.

- **Bin** folder that can be downloaded from the Avitech web site: where the program **`ACP-V201.exe`** is located
- Firmware file (contact the Avitech technical support or your local sales representative).

  NOTE: The firmware update process must be done in a one TACP to one PC environment only.

B.2 Making the Connection

To connect the TACP to the PC, perform the following steps:

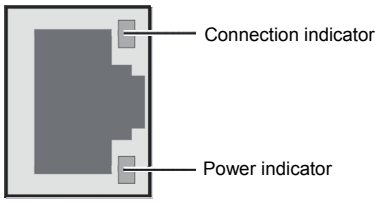
1. Connect one end of the Ethernet cable to the PC's RJ-45 port.

2. Connect the other end of the Ethernet cable to the TACP's Ethernet port ( ).

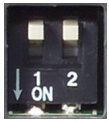
3. Press the power switch to power on the TACP.

4. Make sure that the power LED and the connection LED on the Ethernet port of the TACP glows yellow. When the power is on but the network connection is down, the connection LED will be off and the power LED will glow orange.

Power Indicator	Glows yellow when the TACP has an available connection to LAN.
	Glows orange when the power is on but the connection to LAN is down.
Connection Indicator	Glows/blinks yellow when the TACP has an available connection to LAN / is accessing the LAN.
	Is off when the connection to LAN is down.



5. Make sure that both dip switches are set off (flip up).



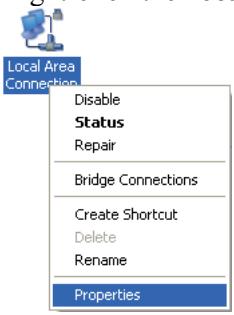
B.3 Configuring the IP Address

Make sure the IP address is in the same Subnet as your TACP. If the Subnet of your PC is not the same as your TACP and Multiviewer modules (e.g., **`210.100.100.xx`**), you will have to update your PC's. To do so, perform the following steps:

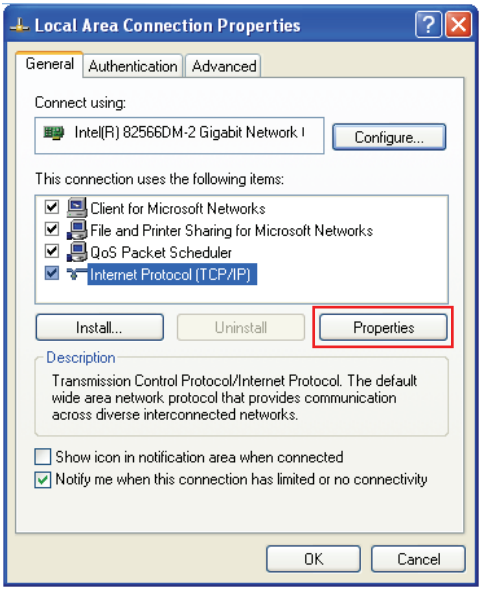
1. On your PC, go to **Control Panel** and double-click the **Network Connections** icon

.

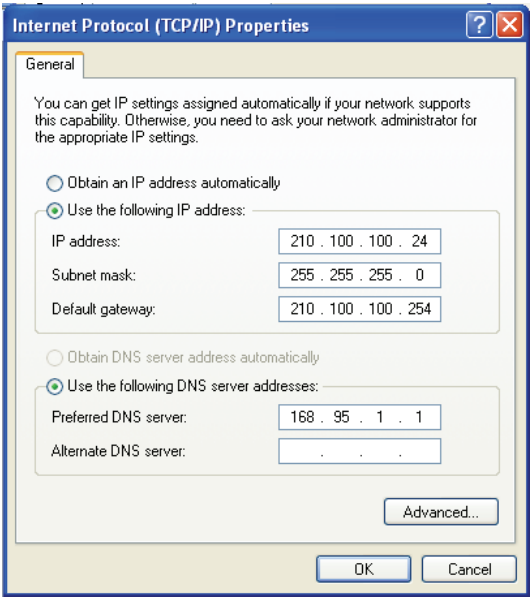
2. Right-click the **Local Area Connection** icon and select **Properties**.



3. In the **General** tab, click to highlight **Internet Protocol (TCP/IP)** and click **Properties**.



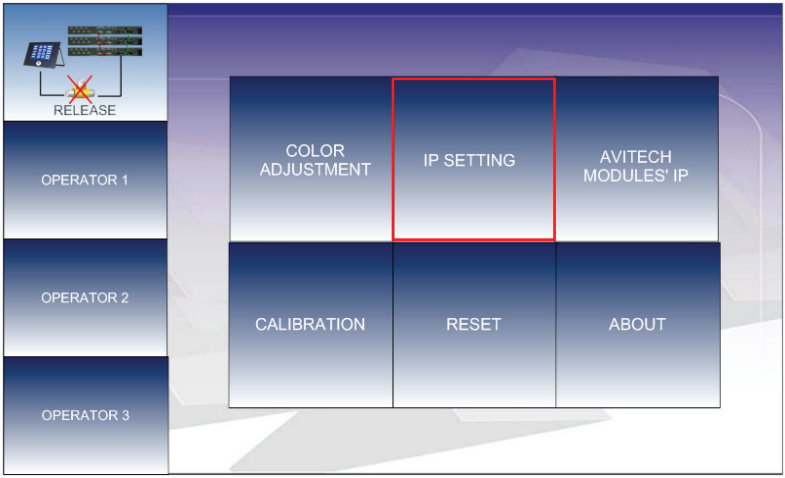
4. If the IP setting is **Obtain an IP address automatically,** change it to **Use the following IP address**. Make sure to fill in your **IP address** along with **Subnet mask** and the **Default gateway** to be in the same range as your TACP's. Leave the **Preferred DNS server** as is or leave it blank.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 210 . 100 . 100 . 24
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 210 . 100 . 100 . 254
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 168 . 95 . 1 . 1
Alternate DNS server:
Advanced...
OK
Cancel

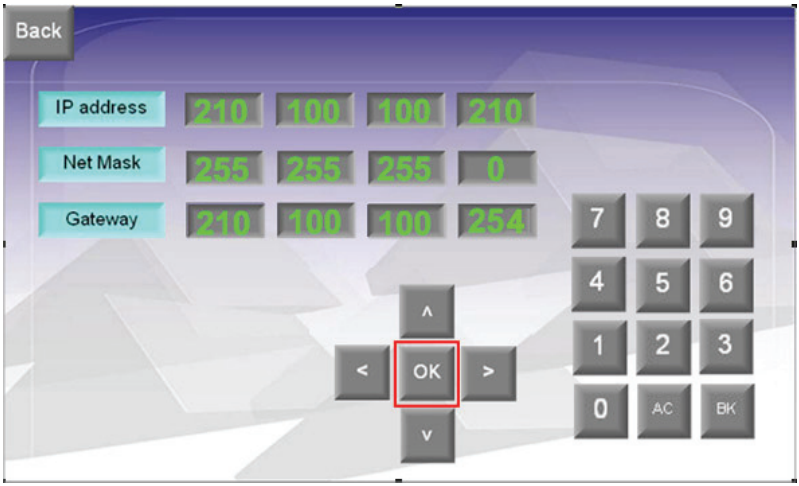
Checking the TACP's IP Address

To check the TACP's IP address, perform the following steps:

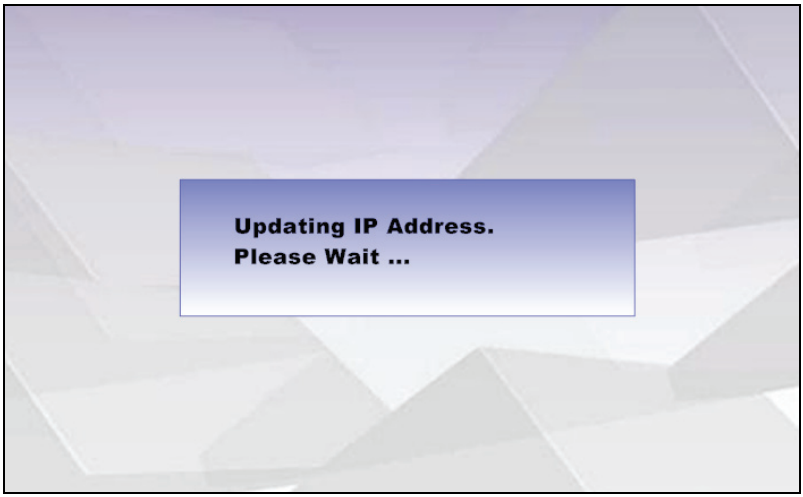
1. On your TACP tap **IP SETTING**.



2. The following screen appears showing the TACP's IP address. To change the value of the IP address, use up / down / left / right arrow keys to select the column first (the column that is highlighted will be shown in red), then use the on-screen keypad to key in the new IP address.



3. Tap **OK** and the following screen appears.



4. The TACP would automatically restart.

B.4 Updating the Firmware

IMPORTANT:
- If you need to update both AX11015 and WT8882 firmware, make sure to perform AX11015 firmware update first.
- Before updating the firmware, disconnect all wireless connections to your PC.
- It is highly recommended that you disable the Microsoft Windows firewall (refer to the Microsoft Windows manual for more details).

The firmware for TACP is divided into:

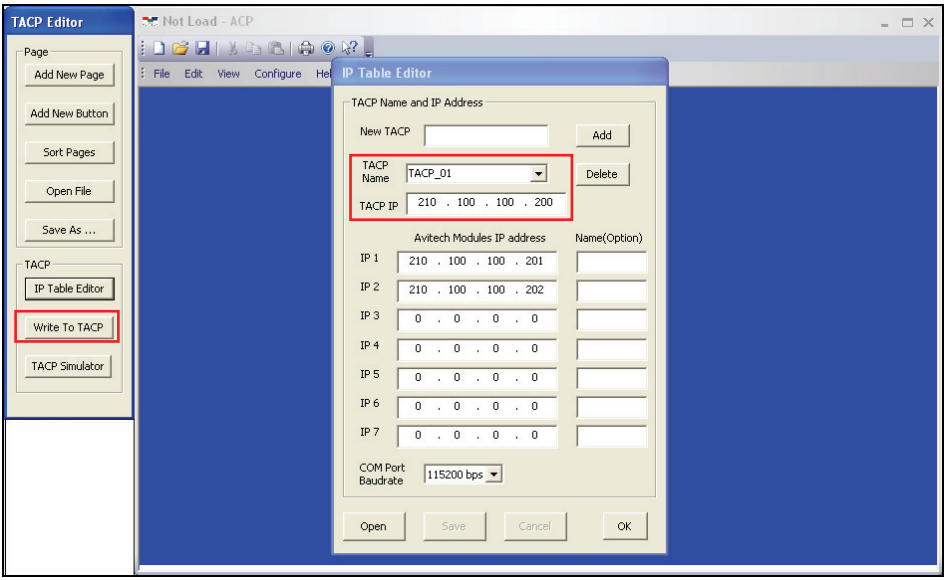
- AX11015 firmware
- WT8882 firmware

AX11015 Firmware

To update the AX11015 firmware, perform the following steps:

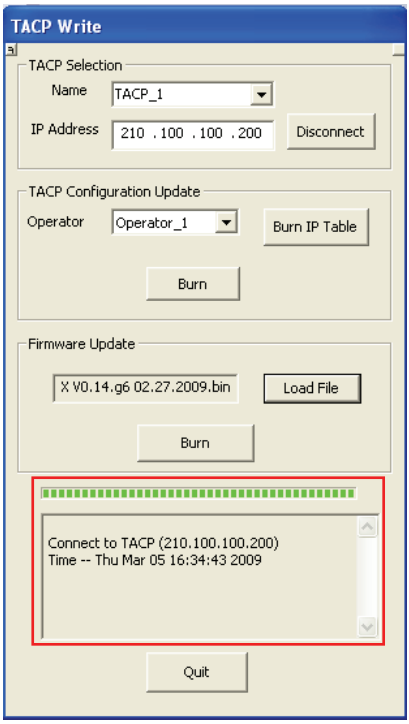
1. Double-click the **`ACP-V201.exe`** in the **Bin** folder to start ACP.

2. When the following screen appears, select the **TACP Name** you are updating firmware to on the **IP Table Editor** window. Also, check if the **TACP IP** is same as the TACP's.



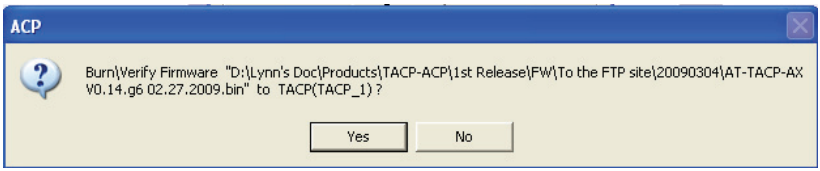
3. Click **Write to TACP** and the **TACP Write** window appears.

4. Select the TACP **Name** and verify if the **IP Address** is the same as the TACP's, then click **Connect** to connect to the TACP. The progress of connection would be shown.

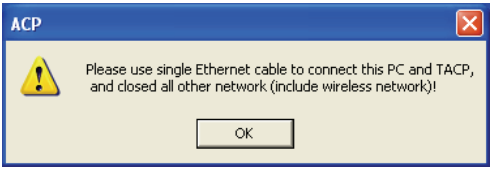


5. On the **Firmware Update** section, click **Load File** to locate the latest firmware file (**`AT-TACP-AX V0.xx.g6 mm.dd.yyyy.bin`**) where **`xx`** is the version number.

6. Click **Burn** and the following screen appears. Click **Yes** to continue.


ACP
Burn\Verify Firmware "D:\Lynn's Doc\Products\TACP-ACP\1st Release\FW\To the FTP site\20090304\AT-TACP-AX V0.14.g6 02.27.2009.bin" to TACP(TACP_1) ?
Yes
No

7. When the next screen appears, click **OK** to continue. The firmware update process may take about 60~90 seconds.

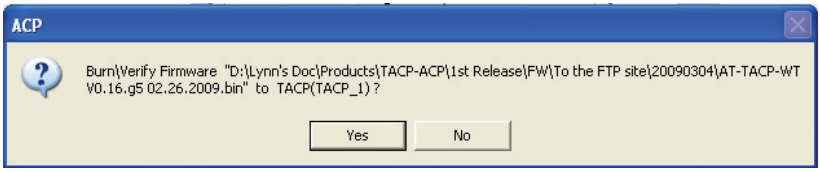

ACP
Please use single Ethernet cable to connect this PC and TACP, and closed all other network (include wireless network)!
OK

8. Upon finishing the firmware update process, the TACP would automatically be disconnected from the ACP.

WT8882 Firmware

To update the WT8882 firmware, perform the following steps:

1. Repeat steps 1 ~ 4 on updating the AX11015 firmware (see previous section).
2. On the **Firmware Update** section, click **Load File** to locate the latest firmware file (**`AT-TACP-WT V0. xx.g5 mm.dd.yyyy.bin`**) where **`xx`** is the version number.
3. Click **Burn** and the following screen appears. Click **Yes** to continue.

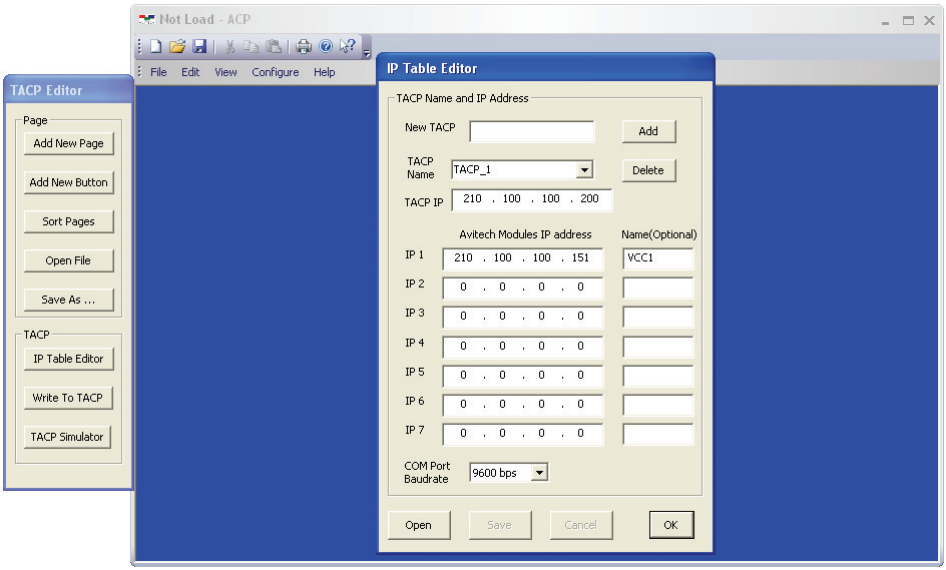

ACP
Burn\Verify Firmware "D:\Lynn's Doc\Products\TACP-ACP\1st Release\FW\To the FTP site\20090304\AT-TACP-WT V0.16.g5 02.26.2009.bin" to TACP(TACP_1) ?
Yes
No

4. Upon finishing the firmware update process, the TACP would automatically be disconnected from the ACP.

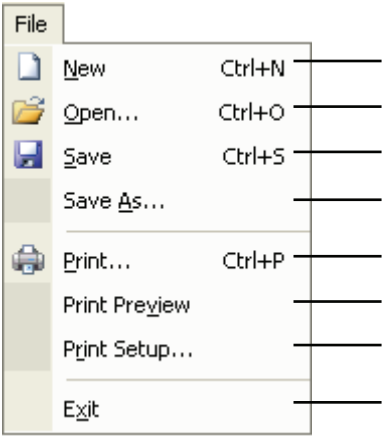
C ACP (More Information)

This appendix provides additional information about the ACP.

Upon double-clicking the mouse on the **`ACP-V201.exe`** file located in the **Bin** folder. The following screen appears.



C.1 ACP Menu Items



Create a new configuration.

Open configuration file that may consist of multiple pages and IP setting table. Configuration file is stored in the “TACP” folder.

Save the configuration file using the default filename to the “TACP” folder.

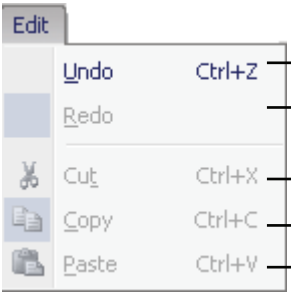
Save the configuration file using a new filename to the “TACP” folder.

Print out the active document.

Show a preview of the page to be printed.

Set up the printer options.

Quits the ACP, may prompt you to save the page.



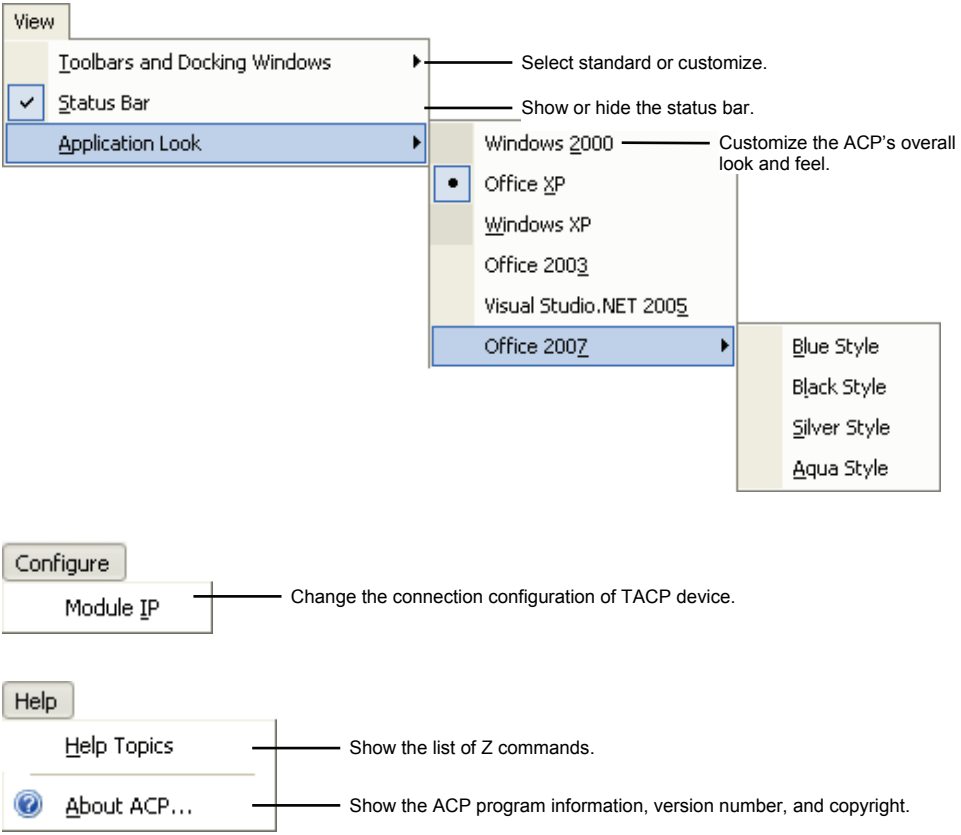
Undo the last action.

Redo the last action that was cancel by the above Undo.

Cut the selection and places it in the Clipboard.

Copy the selection and places it in the Clipboard.

Insert the Clipboard content.



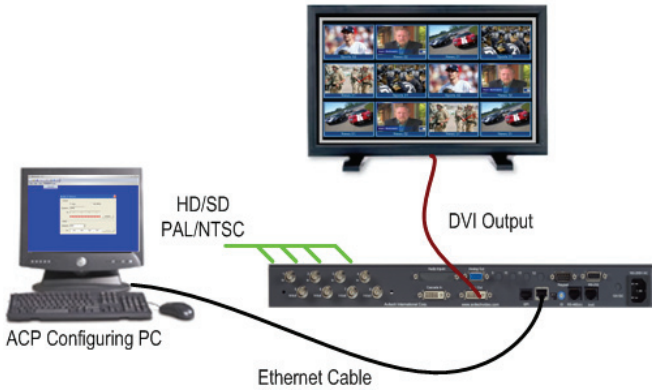
C.2 Setting Up the Module(s) IP / COM Port Baud Rate

Before connecting the TACP to the Avitech Multiviewer modules, you have to set module's IP address and COM port baud rate. This section shows you how to change these using the ACP.

> **NOTE:** If you are familiar with the Galaxy program, you may use it to change the IP/COM port baud rate. The Galaxy program can be downloaded from the following location **`http://avitechvideo.com/download_software.shtml`**

To connect the PC to the Avitech Multiviewer modules, perform the following steps:

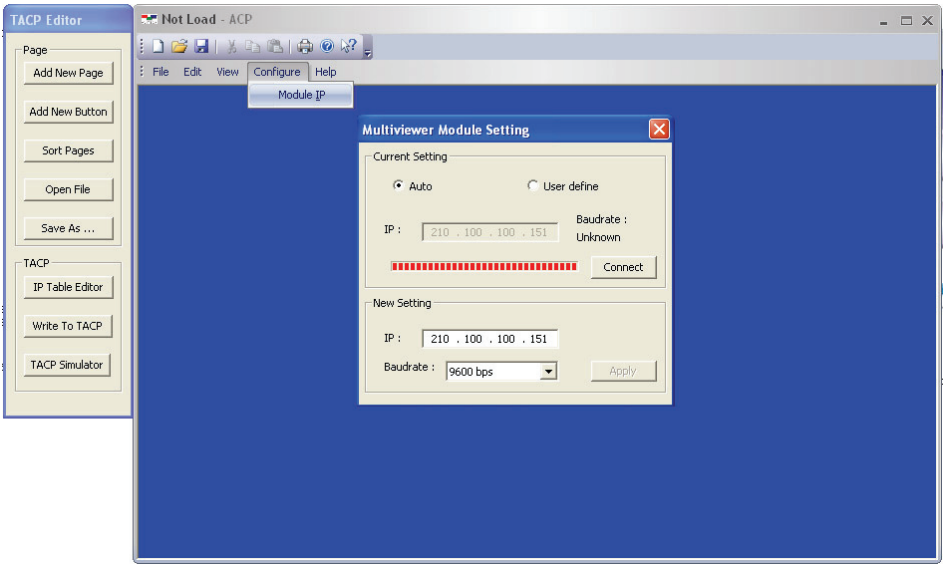
1. Connect the ACP configured PC with the master Multiviewer module over IP.



> **NOTE:** To prevent Multiviewer interruption as well as get a faster response when the ACP module IP detector is broadcasting to the entire network while searching for the Multiviewer module, it is advised to connect the PC to the master module locally while scanning the IP address.

2. Run the **`ACP-V201.exe`** program.

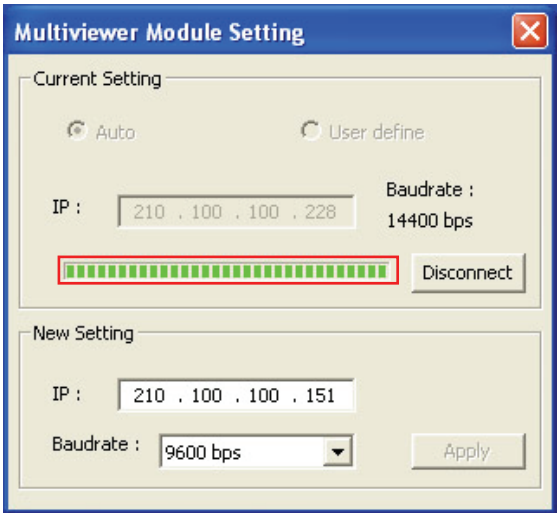
3. Click **Configure → Module IP** to open **Multiviewer Module Setting** window. This is to check or modify the IP address / COM port baud rate of the master Multiviewer modules.



NOTE: Use the Galaxy program if you wish to arrange cascaded modules into different groups (refer to the Galaxy program User's Manual for more details).

4. On the **Current Setting** section, click the **Auto** radio button if the Multiviewer's IP address is unknown. If the IP address of the master module is known but needs to be modified, click to select the **User define** radio button.
5. Enter the new **IP** address and/or the **Baud rate** in the **New Setting** section.
6. Click **Connect** to start scanning.

7. When the connection has been made, the progress bar will turn from red to green. You will see the current **IP** address and COM port **Baud rate** on the **Current Setting** section.



8. Enter the new IP address in the **IP** window, or change the module's baud rate by clicking the **Baud rate** drop down menu, then click **Apply**.
9. Repeat the above steps if there is more than one master module.
10. Click the **x** on the upper right corner when done to close the **Multiviewer Module Setting** window.